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Analyzing Arkansas' Individual Income Tax by Income Brackets: 1986 - 1987

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Introduction

The individual income tax is one of Arkansas' major state revenue sources, accounting for 30% of net general revenues in fiscal year 1988. Recently the equity and efficiency of the tax have been subjects of discussion by several groups, including the Center for Budget and Policy Priorities[2] and the Arkansas Tax Reform Commission.[3] The 1989 Arkansas General Assembly considered several individual income tax measures but failed to pass any major changes. The 1987 Legislature, however, made sweeping changes to the income tax. This paper will focus on the effects of those statutory changes and economic changes on taxpayers at different income levels, the occurrence of bracket creep and the overall tax progressiveness felt by taxpayers in different income brackets.

In tax year 1987, filers of state individual income tax reported total income of almost $19.5 billion, an increase of approximately 17% over tax year 1986.[4] These taxpayers were liable for a 1987 total net tax bill of $662.6 million, up from $496.5 million in tax year 1986. Thus while total income grew by 17% in one year, total tax liability increased by 33%. Adjusted for changes in price levels and population, average income per tax return increased in tax year 1987 by approximately 9% in 1982-1984 dollars (from $18,526 to $20,275) over 1986 while average tax liability per return increased by 25% (from $513 to $690) over the same period. The 16 percentage point disparity between income growth and tax liability growth gives evidence of the tax increase which occurred in 1987.

How did that happen? In tax year 1987, many changes to the income tax law became effective as the result of the Income Tax Act (382) of 1987. In that act, the General Assembly adopted certain provisions of the Internal Revenue Code reflecting the federal Tax Reform Act of 1986. There also was probably some incidence of bracket creep--inflation pushing taxpayers into higher brackets thus increasing tax liability faster than income.

Tax Statistics by Income Levels

Tables 1 and 2 summarize Arkansas Revenue Division data for tax years 1986 and 1987. The columns represent income ranges based on total income per tax return. These income ranges do not correspond to the marginal tax rate brackets used for tax computation. The ranges of the brackets vary and are smaller in the lower ranges in order to show more detail. Each row represents a statistic either direct or derived from Revenue Division

Table 1

Arkansas Income Tax Statistics for Year 1986 by Income Range

	$0 $4,999	$5,000 $9,999	$10,000 $14,999	$15,000 $19,999	$20,000 $24,999	$25,000 $34,999	$35,000 $49,999
Number of Returns:	165,358	148,599	122,173	94,317	72,833	100,148	72,068
Total Income: ($ thousands)	402,766	1,099,367	1,514,715	1,640,688	1,631,352	2,960,569	2,975,088
Itemized Deductions: Average per Return:	$2,587	$3,588	$3,928	$4,228	$4,628	$5,407	$6,934
Standard Deductions: Average per Return:	$260	$706	$950	$953	$949	$937	$896
Net Taxable Income: ($ thousands)	340,797	930,875	1,295,518	1,390,588	1,361,502	2,436,707	2,410,687
Total Credits: Average per Return:	$21	$37	$43	$45	$49	$54	$59
Net Tax Liability: (thousands)	$1,233	$10,849	$25,839	$35,820	$40,550	$82,593	$95,358
Average Return Income $	2,436	7,398	12,398	17,395	22,399	29,562	41,282
Average Liability per Return $:	7.46	73.01	211.50	379.78	556.75	824.71	1,323.17
Statutory Marginal Tax Rate:	1.0%	3.5%	4.5%	6.0%	6.0%	7.0%	7.0%
Effective Tax Rate:	0.306%	0.987%	1.706%	2.183%	2.486%	2.790%	3.205%
Average Rate Progression:		0.14	0.14	0.10	0.06	0.04	0.04
Liability Progression:		4.31	2.81	1.97	1.62	1.50	1.52
Residual Income Progression:		0.99	0.98	0.98	0.99	0.99	0.98

Table 1 (Cont.)

	$50,000 $64,999	$65,000 $79,999	$80,000 $99,999	$100,000 $499,999	$500,000 & Over	Totals
Number of Returns:	24,525	8,691	5,109	8,042	477	822,340
Total Income: ($ thousands)	1,375,855	620,218	453,513	1,362,055	656,185	16,698,014
Itemized Deductions: Average per Return:	$9,012	$11,079	$13,951	$24,656	$113,602	$5,921
Standard Deductions: Average per Return:	$788	$754	$75	$693	$677	$700
Net Taxable Income: ($ thousands)	1,101,899	496,719	363,107	1,117,314	583,709	13,829,422
Total Credits: Average per Return:	$66	$78	$9	$159	$1,426	$44
Net Tax Liability: (thousands)	$50,219	$25,136	$19,878	$69,202	$39,794	$496,471
Average Return Income $	56,100	71,363	88,767	169,368	1,375,650	20,305
Average Liability per Return $:	2,047.67	2,892.19	3,890.78	8,605.07	83,425.58	603.73
Statutory Marginal Tax Rate:	7.0%	7.0%	7.0	7.0%	7.0%	7.0%
Effective Tax Rate:	3.650%	4.053%	4.383%	5.081%	6.064%	2.973%
Average Rate Progression:		0.03	0.03	0.0	0.01	0.00
Liability Progression:		1.53	1.52	1.42	1.3	1.22
Residual Income Progression:		0.98	0.98	0.9	0.98	0.99

Table 2

Arkansas Income Tax Statistics for Year 1987 by Income Range

	$0 $4,999	$5,000 $9,999	$10,000 $14,999	$15,000 $19,999	$20,000 $24,999	$25,000 $34,999	$35,000 $49,999
Number of Returns:	152,988	147,561	122,092	96,755	76,801	107,555	82,753
Total Income: ($ thousands)	388,126	1,093,360	1,539,254	1,683,532	1,720,351	3,183,024	3,423,111
Itemized Deductions: Average per Return:	$2,545	$3,045	$2,819	$2,696	$2,677	$2,812	$3,276
Standard Deductions: Average per Return:	$252	$609	$780	$716	$654	$598	$557
Net Taxable Income: ($ thousands)	354,622	822,848	1,301,911	1,509,529	1,527,590	2,787,854	2,957,163
Total Credits: Average per Return:	$28	$50	$57	$62	$67	$74	$80
Net Tax Liability: (thousands)	$914	$10,132	$26,642	$38,422	$45,708	$95,589	$119,189
Average Return Income $	2,537	7,410	12,607	17,400	22,400	29,594	41,365
Average Liability per Return $:	5.97	68.66	218.21	397.11	595.15	888.75	1,440.30
Statutory Marginal Tax Rate:	1.0%	3.5%	4.5%	6.0%	6.0%	7.0%	7.0%
Effective Tax Rate:	0.235%	0.927%	1.731%	2.282%	2.657%	3.003%	3.482%
Average Rate Progression:		0.14	0.15	0.12	0.07	0.05	0.04
Liability Progression:		5.46	3.10	2.16	1.74	1.54	1.56
Residual Income Progression:		0.99	0.98	0.98	0.98	0.99	0.98

Table 2 (Cont.)

	$50,000 $64,999	$65,000 $79,999	$80,000 $99,999	$100,000 $499,999	$500,000 & Over	Totals
Number of Returns:	29,891	10,500	5,897	9,568	895	845,256
Total Income: ($ thousands)	1,678,622	759,859	521,986	1,688,086	1,789,242	19,468,553
Itemized Deductions: Average per Return:	$4,223	$5,512	$7,104	$20,153	$191,119	$6,290
Standard Deductions: Average per Return:	$534	$561	$59	$625	$677	$588
Net Taxable Income: ($ thousands)	1,436,774	648,836	444,865	1,457,277	1,576,489	16,825,758
Total Credits: Average per Return:	$87	$93	$10	$162	$611	$60
Net Tax Liability: (thousands)	$66,664	$33,474	$24,695	$91,484	$109,699	$662,612
Average Return Income $	56,158	72,368	88,517	176,430	1,999,153	23,033
Average Liability per Return $:	2,230.24	3,188.00	4,187.72	9,561.45	122,568.72	783.92
Statutory Marginal Tax Rate:	7.0%	7.0%	7.0	7.0%	7.0%	7.0%
Effective Tax Rate:	3.971%	4.405%	4.731%	5.419%	6.131%	3.403%
Average Rate Progression:		0.03	0.03	0.02	0.0	0.00
Liability Progression:		1.53	1.49	1.41	1.2	1.14
Residual Income Progression:		0.98	0.98	0.9	0.99	0.99

data. Most of these statistics are self-defining; those which are not will be explained later in this paper.

Numbers of Returns

In Tables 1 and 2, the term "return" refers to a single return with a primary filer and possibly a spouse. Hence, a joint return counts as one return, as does a married couple filing separately on the same return; but a couple filing separate returns counts as two returns. Tables 1 and 2 show that the total number of returns increased in 1987 by only 2.5% (from 822,340 to 845,256) over 1986. Although this may seem to be an insignificant increase, there have been substantial changes in the distribution of the number of returns among the different income ranges. Many taxpayers tended to shift into higher income ranges in 1987 compared with 1986. In the zero-$4,999 income range, there was a 7.5% decrease in the number of returns. The $5,000-$9,999 and $10,000-$14,999 income ranges show meager decreases in the number of returns. The remaining ranges show increases in the number of returns, especially those income ranges above $25,000. This shift of taxpayers into higher income ranges exhibits both the economic and the employment growth occurring during the year, and to some extent, inflation. One can conclude that as incomes rose in 1987, many taxpayers at the lower income ranges were pushed into higher marginal tax rate brackets. There are five marginal tax rate brackets below the $25,000 income range; thus some low income taxpayers whose incomes may have increased saw their tax liabilities increase at a greater rate--in real terms some filers' taxes may have increased while their incomes were stagnant. This bracket creep accounts for some of the disparity in the growth rates in total income and total tax liability.

Effective Tax Rates (ETR), Credits, and Deductions

Obviously, as total tax liability rose faster than total income, the overall effective tax rate rose in 1987 over 1986. The average ETR for all returns in 1987 was 3.403% compared with 2.973% in 1986. However, as shown in Tables 1 and 2, the change in ETRs was not uniform in all income ranges. Taxpayers with incomes of less than $5,000 saw their ETRs decrease slightly from 0.306% in 1986 to 0.235% in 1987 primarily as a result of higher personal tax credits. Taxpayers with income between $5,000 and $10,000 also had slight decreases in ETR. In 1986 the personal tax credit was $17.50 for primary filers and spouses and $6.00 for dependents. Act 382 of 1987 increased all credits in 1987 to $20.00. These additional credits provided some tax relief to low income filers.

Effective tax rates were higher in 1987, however, for taxpayers in the higher income ranges. For example, ETRs for taxpayers with incomes between $25,000 and $34,999 increased by 0.21 percentage points, and ETRs for taxpayers with incomes between $65,000 and $499,999 increased by about 0.35 percentage points. The increases in ETRs in the high income ranges are most likely a result of the changes in rules governing itemized deductions. Following federal tax reform, Act 382 of 1987 made several changes in the treatment of itemized deductions, including eliminations of deductions for sales tax, motor fuels tax, drivers' licenses, blood donations and political donations. The act also limited deductions for consumer interest, business entertainment expenses and miscellaneous deductions. These limitations on itemized deductions show up when one examines the changes in average itemized deductions per return during the two years. For all income groups except those taxpayers with annual incomes greater than $500,000, itemized deductions per return decreased in 1987 compared with 1986. These highest income taxpayers, interestingly enough, had only an extremely small increase in their ETR – 0.07 percentage points. The greatest increases in ETRs and the greatest decreases in itemized deductions per return both occurred among taxpayers with annual incomes between $35,000 and $79,999. The effective tax rates for taxpayers from different income levels for 1986 and 1987 are plotted in Figure 1, "Tax Rates by Income Level."

Tax Liabilities Per Return

The average tax liability per return also mirrors the above trends. The average taxpayers in the income ranges below $10,000 experienced slight decreases in their average tax liabilities. The average taxpayers in all other income ranges had liability increases, and the percentage increases in tax liabilities were generally larger in the higher income ranges than in the lower income ranges.

Tax Progressiveness Measures

When referring to income taxes, the term progressive means that the rate of taxation rises as income rises. This is opposed to a regressive tax in which the tax rates decrease as income increases or a proportional tax in which the tax rates are constant. Popular philosophies of taxation hold that progressive taxes are the most equitable, requiring the wealthy to give up larger portions of their incomes as tax than do the poor. Figure 1 illustrates the progressiveness of the individual income tax; the effective tax rates continually rise as income rises.

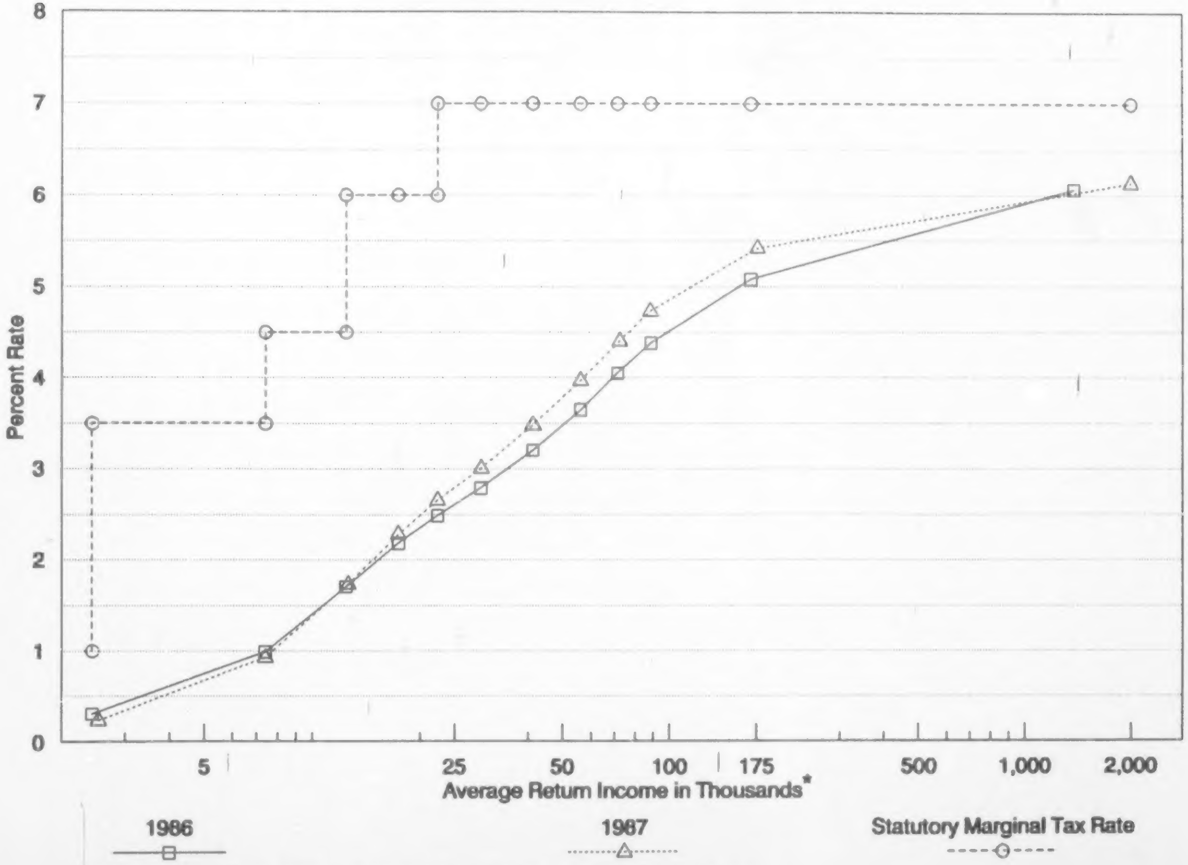
Progressiveness is not, however, constant among all income ranges; progressiveness is greater in the low income ranges than in the high ranges. That is, low income taxpayers face sharper increases in tax burden as a result of an income increase than do high income taxpayers. This study derives three statistics from Arkansas data in order to test the between-income range progressiveness of the income tax: the average rate progression, the residual income progression and the liability progression.[5] Tables 1 and 2 display these three measures for the different income ranges for the two tax years.

The **average rate progression** (ARP) represents the slope of the line plotting ETRs in Figure 1 and equals the change in effective tax rate between two adjacent income ranges divided by the change in income per return (in thousands) between those same ranges. An ARP of zero indicates a proportional tax; positive, a progressive tax; negative, a regressive tax. The rate of increase of ETRs (shown by the slopes of the graphed functions in Figure 1) is not constant, indicating that the progressiveness is not constant over the income ranges. The 1986 tax year data produce average rate progression statistics which show relatively strong progressiveness among taxpayers with incomes of less than $5,000 (ARP = 0.14) and proportionality among taxpayers with incomes greater than $500,000 (ARP = 0.00). That is, the average taxpayer with income less

Figure 1

Tax Rates by Income Level

1986-87



*Note: Logarithmic scale. Equal slopes indicate equal rates of change.

than $5,000 experiences an ETR increase of 0.14 percentage points for each additional $1,000 in before-tax income; while the average taxpayer with income greater than $500,000 who earns an additional $1,000 has no significant change in ETR. In 1987 there were no significant changes in ARP values for any income range.

The **residual income progression** (RIP) measures progression with respect to after-tax income and equals the percentage change in after-tax income per return between two adjacent income ranges divided by the percentage change in total income per return between the two ranges. This measure often gives a result leading to a progressiveness conclusion different from the other two measures.[6] Residual income progression values were 0.98 to 0.99 for all ranges in 1986, indicating near proportionality for each income range. According to these statistics, for both low and high income taxpayers, after-tax income seems to grow (or shrink) at about the same rate as before-tax income changes. There were no significant changes in RIP values for any income range in 1987.

The **liability progression** (LP) describes the change in tax liability with respect to income and equals the percentage change in tax liability per return between two adjacent income ranges divided by the percentage change in income per return between the two ranges. An LP of 1.0 indicates proportionality; greater than 1.0 shows progressiveness; less than 1.0 shows regressiveness.

There were some interesting changes in the liability progression values computed for the two years. The LP values for 1986 are considerably higher in the low-income ranges than in the high income ranges. These statistics mean that in 1986 average taxpayer tax liability increased in percentage terms 4.31 times faster than average taxpayer income between the 0-$4,999 and $5,000-$9,999 income ranges. Between the $100,000-$499,999 and the $500,000-and-over income ranges in 1986, the LP shows that average liability increased in percentage terms 1.22 times faster than average income. Thus, according to this progressiveness measure, when low income taxpayers increased their earning power, they experienced greater increases in their tax liability relative to their incomes than did high income taxpayers. This situation could provide strong disincentives to productivity and earnings growth among low income taxpayers.

The tax reform measures of 1987, while providing slight relief to low income taxpayers as previously stated, probably magnified the disparity in the liability progression measures. In 1987, as Table 2 shows, the LP between the $0-$4,999 and $5,000-$9,999 income ranges is 5.46 compared to 1.14 between the $100,000-$499,999 and $500,000-and-over income ranges.

Conclusion

Many changes occurred in the cross section of income tax filers in 1987 over the previous tax year. These came as a result of economic changes and the Income Tax Act of 1987. Many taxpayers moved into higher income brackets compared with filers in 1986. Bracket creep and limits on itemized deductions caused total tax liability to increase almost twice as fast as total before-tax income. The problem of bracket creep will accelerate in the future if inflation increases because income tax rates are based on nominal rather than real income. The 1987 tax increase came at the expense of taxpayers with incomes of $10,000-or-more, as increased personal tax credits gave slight tax relief to the taxpayers with the lowest incomes, decreasing both their average tax liability and effective tax rates.

Taxpayers with incomes of less than $10,000 got some tax relief through increased personal credits, but this small relief may be a two-edged sword. The liability progression measure of tax progressiveness indicates that their tax liabilities will quickly rise as they increase their earning power. Some ambitious low-income individuals may be discouraged by the sharply increased tax bills resulting from their increased labor. Thus the structure of the income tax might encourage some individuals with low incomes to forgo some income producing opportunities and remain poor. While the Arkansas income tax is very progressive for low income taxpayers, the tax approaches proportionality for the taxpayers with the highest incomes. Lawmakers, when formulating tax structures, should therefore consider not only the total revenue impact of laws and the impact on taxpayers in different income ranges, but also the tax effects on taxpayers who may move between income ranges.

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[2] Frederick C. Hutchinson, *Against the Current: Arkansas' Taxes and the Poor*, Washington, D.C.: Center on Budget and Policy Priorities, 1988).

[3] Arkansas Tax Reform Commission, *Arkansas Tax Reform: A Report and Recommendations on the Arkansas Tax System*, (Little Rock, 1988).

[4] *Annual Statistics Report-Tax Years 1986, 1987,* (Little Rock: Arkansas Department of Finance and Administration, Revenue Division, Individual Income Tax Section, 1987, 1988). These reports are the sources of all revenue data used in the text and figures of this paper.

[5] Richard A. Musgrave and Peggy B. Musgrave, *Public Finance in Theory and Practice,* (New York: McGraw-Hill, 1984). Musgrave and Musgrave describe the use of these progression measures.

[6] Ibid.

The Impact of Migration Upon the Educational Levels of the Arkansas Population by Age

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Background and Data Source

Migration plays a key role in determining the social, economic, and political structure of the Arkansas population. Previous research shows that Arkansas has experienced net out-migration of young adults and in-migration of older persons and children for the last four decades.[1] This is a pattern typical of rural areas in most of the United States. Arkansas, however, is an attractive destination for retirement and differs from many rural states in the extent of elderly in-migration. During the 1970's Arkansas experienced a net loss of 8000 persons aged 20 to 29 years, even though the state had a net in-migration of nearly 240,000 persons. About 50 percent of the net gain was among those aged 10 to 19 or aged 70 and older. This pattern of losing young adults and gaining the young and old was even more pronounced in previous decades.[2]

The impact of this migration pattern is three-fold. First, it increases the burden of dependency by reducing the proportion of the population in the active, wage-earning years and increasing the proportions of both young and old dependent populations. Second, it appears to constitute a kind of "brain drain" of newly educated persons--most of them educated in Arkansas at Arkansas' taxpayers' expense--to other states. A third, more positive, impact is that older in-migrants, some of whom were earlier out-migrants, bring with them work experience, skills and capabilities that can be beneficial to the state.

A unique data set from the 1980 Census is employed in this examination of migration patterns.[3] In 1980, respondents were asked where they lived in 1975, allowing the comparison of all migrants to Arkansas with all out-migrants. This examination focuses upon "brain drain"--its extent, and occurrence within major age categories.

Findings

Table 1 presents frequencies, percentage distributions of educational attainment and average education[4] by age for in- and out-migrants. The table's fifth column shows gains and losses in each educational

Table 1

Educational Attainment of the Arkansas Population by Migration Status[1]

Level of Education and Age	Col. 1 In-migrants Number	Col. 2 In-migrants Percent	Col. 3 Out-migrants Number	Col. 4 Out-migrants Percent	Col. 5 Ratio of in- to out-migrants
Age Group 18-24 (Frame 1)					
0-8 Yr. Elementary	1,857	4.18	1,570	3.27	1.18
1-3 Yr. High School	9,657	21.73	10,189	21.20	0.95
4 Yr. High School	19,263	43.35	21,699	45.15	0.89
1-3 Yr. College	10,506	23.64	10,495	21.84	1.00
4 Yr. College	2,610	5.87	3,270	6.80	0.80
5 + Yr. College	540	1.22	842	1.75	0.64
Sub-total	44,433	100.00	48,065	100.00	0.92
Average years		12.12		12.21	
Age Group 25-34 (Frame 2)					
0-8 Yr. Elementary	2,606	4.26	2,410	4.47	1.08
1-3 Yr. High School	6,223	10.18	6,071	11.26	1.03
4 Yr. High School	23,025	37.65	17,829	33.08	1.29
1-3 Yr. College	14,221	23.25	11,950	22.17	1.19
4 Yr. College	8,266	13.52	8,377	15.54	0.99
5 + Yr. College	6,815	11.14	7,261	13.47	0.94
Sub-total	61,156	100.00	53,898	100.00	1.13
Average years		11.56		13.33	
Age Group 35-44 (Frame 3)					
0-8 Yr. Elementary	2,989	8.68	2,010	8.98	1.49
1-3 Yr. High School	5,005	14.54	3,461	15.47	1.45
4 Yr. High School	13,959	40.55	8,193	36.61	1.70
1-3 Yr. College	6,153	17.88	3,789	16.93	1.62
4 Yr. College	3,069	8.92	2,168	9.69	1.42
5 + Yr. College	3,246	9.43	2,758	12.32	1.18
Sub-total	34,421	100.00	22,379	100.00	1.54
Average years		12.96		12.60	
Age Group 45-64 (Frame 4)					
0-8 Yr. Elementary	8,448	18.81	4,454	21.50	1.90
1-3 Yr. High School	7,772	17.31	3,775	18.22	2.06
4 Yr. High School	16,607	36.98	6,677	32.23	2.49
1-3 Yr. College	6,280	13.99	2,936	14.17	2.14
4 Yr. College	3,244	7.22	1,634	7.89	1.99
5 + Yr. College	2,551	5.68	1,243	6.00	2.05
Sub-total	44,902	100.00	20,719	100.00	2.17
Average years		10.77		11.26	

Table 1 (Cont.)

Level of Education and Age	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
	In-migrants		Out-migrants		Ratio of in- to out-migrants
	Number	Percent	Number	Percent	
Age Group 65 + (Frame 5)					
0-8 Yr. Elementary	7,716	36.34	5,068	41.40	1.52
1-3 Yr. High School	3,611	17.00	2,296	18.75	1.57
4 Yr. High School	4,962	23.37	2,474	20.21	2.01
1-3 Yr. College	2,688	12.66	1,399	11.43	1.92
4 Yr. College	1,459	6.87	577	4.71	2.53
5 + Yr. College	799	3.76	429	3.50	1.86
Sub-total	21,235	100.00	12,243	100.00	1.73
Average years		10.33		9.63	
All Age Groups (Frame 6)					
0-8 Yr. Elementary	23,616	11.46	15,512	9.86	1.52
1-3 Yr. High School	32,268	15.65	25,792	16.40	1.25
4 Yr. High School	77,816	37.75	56,872	36.15	1.3
1-3 Yr. College	39,848	19.33	30,569	19.43	1.30
4 Yr. College	18,648	9.05	16,026	10.19	1.16
5 + Yr. College	13,951	6.77	12,533	7.97	1.11
Total	206,147	100.00	157,304	100.00	1.31
Average years		11.62		12.32	
Average years for natives		10.36[2]			

---

[1] From 1980 Census of Population based upon question of where respondent lived five years ago (1975).

[2] It is important to note that the educational attainment of natives, which includes both in-state movers and non-movers, is, for all age groups, lower than either in- or out-migrants. This is typical.

level by age group as a ratio of in-migrant to out-migrant totals. This can be interpreted as the number of persons gained for each person lost in that category. These measures permit several approaches to examining migration effects on the investment in educational capital by Arkansas.

Migration patterns show a decline in the state's average educational level. In-migrants have, on average, 11.62 years of schooling compared to 12.32 for out-migrants (Table 1, frame 6). Differences are most pronounced at the higher educational levels. College degrees were held by 9.05 percent of in-migrants compared to 10.19 percent of out-migrants, and post-graduate education was completed by 6.77 percent of in-migrants compared to 7.97 percent of out-migrants.

The pattern of higher educational levels among out-migrants is most dramatic in the age groups 18-24 and 25-34. In the

18-24 age group, average education was 12.1 and 12.2 for in-migrants vs. out-migrants, with 11.6 and 13.3 being the corresponding averages in the 25-34 age group. Percentages with college degrees and post-graduate education were 7.0 and 8.6 for in-migrants vs. out-migrants aged 18-24; and 24.6 and 29.0 for those aged 25-34. This general trend is repeated in the age groups 35-44 and 45-64. Although the average education of in-migrants is higher in the 35-44 age group, there is still a larger proportion of highly educated out-migrants.

Among the elderly population, we see a sharp reversal to the pattern of losing the more educated persons to out-migration. This reversal is especially evident for those with college degrees. Among the population aged 65 and older, 10.6 percent of in-migrants compared to 8.2 percent of out-migrants have college degrees and post-graduate education. The average educational level of elderly in-migrants is 10.3, compared to 9.6 for out-migrants. Although Arkansas suffers a decline in average educational levels as the result of migration, this loss occurs most heavily at younger ages and is partly recovered through the in-migration of elderly persons.

Column 5 of Table 1 shows the number of persons Arkansas gained for each person lost to out-migration, therefore any number less than one represents a net loss. Losses to migration are greatest among the 18-24 age group, especially for those who had completed college. This pattern continues among 25-34 year olds. Greatest overall gains from migration are among 45-64 year olds, when more than two persons come into Arkansas for each one that leaves. Especially notable is the relative gain of 2.49 for those with high school education. For the 65+ age group, gains are also high, especially among those who completed four years of college.

The answer to the question of whether Arkansas is exporting its educational capital is complex. In a sense it does lose capital, since the average in-migrant tends to be less educated than the average out-migrant. In most education and age categories, however, Arkansas actually gained persons, with the overall effect that there are more well-educated people entering Arkansas than are leaving. Only in ages 18 to 34 does Arkansas show a net loss of persons with college educations, a deficit that is more than compensated for by net gains among older age groups.

The first frame of Table 2 shows net gains and losses from migration for each age and educational level. The second frame then presents cumulative gains and losses across ages for an educational group or cohort. This simulates changes to Arkansas' population due to migration over time, by following a synthetic group or cohort of similarly educated people through progressive age groups. This allows us to examine the question of when the early losses of highly educated people noted above are recovered.

Looking at frame 1 of Table 2 we see that Arkansas experienced net losses of those with four years college in both the 18-24 and 25-34 age groups. Frame 2 shows that the cumulative net loss across both age groups is 771. The net gain of 901 for 35-44 year olds then slightly more than compensates for the losses in the younger age groups, for a cumulative net gain of 130 persons with four years of college. Cumulative net losses are shown for those with five or more years of college across age

Table 2

Net Migration and Cumulative Net Effects of Migration Upon Arkansas Population by Educational Levels as Synthetic Group or Cohort Passes from Age 18 To 65 and Over

Educational level	Col. 1 18-24	Col. 2 25-34	Col. 3 35-44	Col. 4 45-64	Col. 5 65 +	Col. 6 Total
Net migration by age and educational level (Frame 1)						
0-8 Yr. Elementary	287	196	979	3,994	2,648	8,104
1-3 Yr. High School	(532)	152	1,544	3,997	1,315	6,476
4 Yr. High School	(2,436)	5,196	5,766	9,930	2,488	20,944
1-3 Yr. College	11	2,271	2,364	3,344	1,289	9,279
4 Yr. College	(660)	(111)	901	1,610	882	2,622
5 + Yr. College	(302)	(446)	488	1,308	370	1,418
Sub-total	(3,632)	7,258	12,042	24,183	8,992	48,843
Cumulative net migration for synthetic group or cohort (Frame 2)						
0-8 Yr. Elementary	287	483[1]	1,462[2]	5,456	8,104	
1-3 Yr. High School	(532)	(380)	1,164	5,161	6,476	
4 Yr. High School	(2,436)	2,760	8,526	18,456	20,944	
1-3 Yr. College	11	2,282	4,646	7,990	9,279	
4 Yr. College	(660)	(771)	130	1,740	2,622	
5 + Yr. College	(302)	(748)	(260)	1,048	1,418	
Total	(3,632)	3,626	15,668	39,851	48,843	

[1] This equals 287 plus 196 from the first line, columns one and two, in frame 1 above.

[2] This equals 483 from column 2, the first line, of frame 2, plus 979 from column 3, the first line, of frame 1 above. All other cells of frame 2 are calculated in this way.

groups from 18 to 44. These losses are recovered in the 45-64 age group for a cumulative net gain of 1,048 persons.[5] Initial loss of some of the most highly educated young people from the state is recovered relatively early, certainly well before age 65.

The pattern of losing college educated persons at early ages followed by recovery at later ages has both positive and negative connotations for the contribution of educational capital to Arkansas. On the positive side, many of the older highly educated in-migrants still have a period of active occupational life left, and they bring with them mature capabilities and skills. At the time these older persons, especially those over 65, were obtaining their education, college was a much more significant achievement than today. This is illustrated by the difference between the average educational attainment of in-migrants and natives which is greatest for this age group (8.5 for Arkansas natives, not shown in table, and 10.3 for in-migrants and 9.6 for out-migrants). Thus, this recovery of somewhat older, highly educated human capital could be considered to be even more positive than is apparent. Finally, educational attainment is strongly and positively associated with perceived quality of life, and we can expect the elderly in-migrants to have a positive outlook as they age.[6] However, to the extent that the relatively more educated in-migrants in these age groups are not participants in the labor pool, or their education is ill-suited to current needs, the positive impact on the overall quality of the Arkansas labor force resulting from their arrival is substantially attenuated.

The 1980's have shown greatly reduced rates of in-migration to Arkansas, though the net is still positive. Assuming that migration patterns shown above remain relatively stable, we may find that net loss of the most highly educated persons is more severe and recovery of lost educational capital is less rapid, if it occurs at all. Of particular interest is the impact of migration patterns on educational distribution among the labor force.

Figure 1 depicts the ratio of in-migrants to out-migrants for those aged 25 to 64 by educational level, i.e. it shows the number that came to Arkansas for each person who left. Obviously, for this age group Arkansas experienced net gains at all educational levels, since all values are greater than 1. There is an overall relative gain of 1.47 persons. A reference line has been drawn on the graph at 1.47 to illustrate which educational levels showed relative gains and losses. If migration were equal at all educational levels the ratios would fall on or near the line.

It is clear that gains are greater for the lower levels of education and less for the higher levels. Gains are especially great those with only two or three years of education and those who have completed four years of highschool. The smallest gains are for those who have completed college, or have had post-graduate education. This group, even during this period of high in-migration to the state of Arkansas, barely avoided experiencing a net loss.

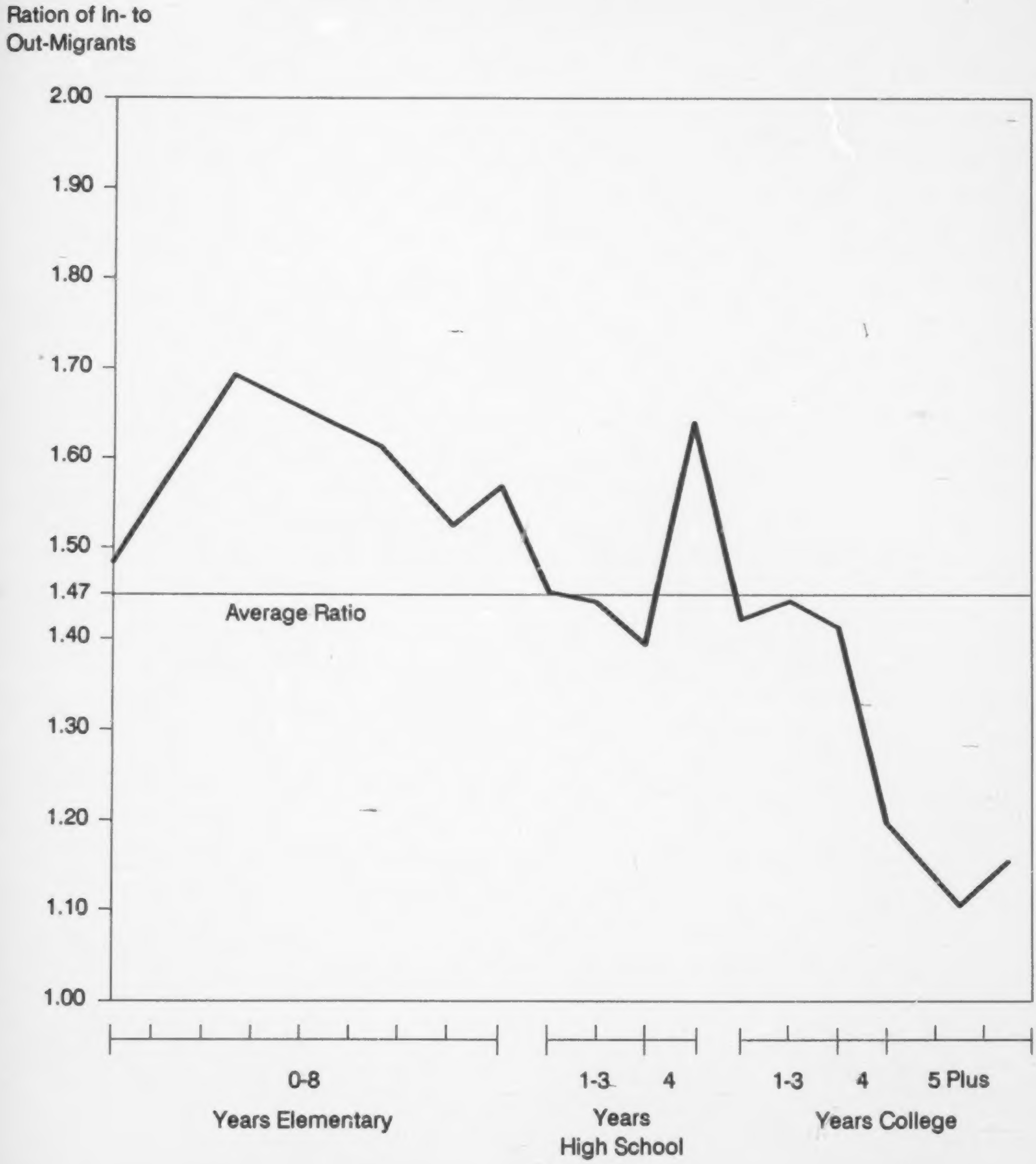
Net migration was very low or zero throughout the 1980's for Arkansas and for rural areas in general; hence, the points above the 1.47 line on Figure 1 show net gains and the points below the line show net losses. The impact of such a migration pattern clearly would involve a net loss of educational capital. Hence, if the patterns of migration by age and educational level remain the same today as they were in the 1975-80 period, Arkansas is now losing a significant amount of its educational capital.[7]

Summary and Conclusions

In the period from 1975 to 1980 Arkansas experienced a positive rate of in-migration. This study focused on migration patterns by age and education and assessed the impacts this migration pattern has on the state's educational levels. First, out-migrants were more highly educated than in-migrants, resulting in a decline in the average levels of education of the Arkansas population. Second, there was a net loss of college educated persons at early ages which was recovered among the older age groups. Third, among those 65 years of age and older, the trend of lower educational levels for in-migrants was reversed,

Figure 1

Arkansas Migration, Ages 25-64
Ratio of In- and Out-Migration by Education



Note: Six points on this graph are derived directly from these data. The lines connecting them are based upon the distribution of the Arkansas population within these categories.

with in-migrants having substantially higher levels of educational attainment than out-migrants.

These results have several program or policy implications. First, the question is raised about the appropriate mix of responsibility for funding basic education. Arkansas, like all other rural states, educates a significant number of persons who make at least their initial occupational contribution elsewhere. In 1980 the major destinations of out-migrants from Arkansas were Texas, Oklahoma, California and Missouri, together accounting for 45 percent of all out-migrants. We assume, though we have not demonstrated it from these data, that most of the young out-migrants go to the urban areas of those states. Many of these migrants come from small, rural communities whose tax base is meager. Should the state of Arkansas and these small communities bear the total cost of educating these persons? To the extent that there is, in fact, a national, or at least a regional, labor pool in which these young people move, should not the federal government take greater responsibility for paying for basic education?

Second, these data illustrate that Arkansas has a unique resource in the elderly persons who have migrated here. Many are not only highly educated, as our data show, but they also bring with them valuable experience and skills. While this in-migration increases the elderly dependency ratio, the federal government bears the major part of public-sector support, primarily through Social Security and Medicare. In fact, this influx of elderly people has a very positive economic impact upon the state, at least in the sense that elderly in-migrants are purchasers of goods and services and bring substantial savings with them. It is also beneficial--at least potentially--in the education and skill levels that these people bring to the state, many of whom do still engage in at least part-time employment.

Third, the pattern of migration by age and educational level suggests that agencies within the state, perhaps educational institutions, should consider developing rosters of educated young people who have left. Many are now gaining valuable employment experience elsewhere and might be prepared to return to Arkansas. These rosters could be used to keep the expatriate young people in contact with new employment opportunities in Arkansas. Especially their potential availability could be indicated to new or expanding businesses of industries in Arkansas.

The data from this unique source can also be used to assess the impacts of particular migration streams, e. g., those among groups of counties, such as rural and urban, and among selected states, such as Arkansas and Texas, Arkansas and California, etc. Analyses of this kind are now being undertaken by the authors.

---

[1] Voth, Donald E. *The Impact of Migration on Arkansas*. An invited lecture presented for the Center for Arkansas and Regional Studies, University of Arkansas, the Arkansas Endowment for the Humanities, and the University of Arkansas Division of Continuing Education, March 15, 1984 (Fayetteville, Arkansas: Department of Agricultural Economics and Rural Sociology, University of Arkansas, Staff Paper Series 0984.

[2] Voth, *The Impact of Migration on Arkansas*.

[3] 1980 U.S. Census of Population, Place of Work and Migration File, 50% sample. As far as we can determine, only two other analyses have been presented from this unique data source. See Paul R. Voss and Glenn V. Fuguitt, "The Impact of Migration on Rural Areas of Chronic Depression in the United States" (paper presented at the VIIth World Congress for Rural Sociology, Bologna, Italy, June 28, 1988); and Voss and Fuguitt, "The Impact of

Migration on Rural Areas of Chronic Depression" (paper presented at the annual meetings of the Population Association of America, Baltimore, Md., March 30, 1989.)

[4] Averages were calculated from the categorical data in the table. Census data provided detailed frequency distributions of educational attainment by age for the total Arkansas population. Proportions derived from these data were used to assign respondents in this table proportionately to single years-of-education groups within the groader categories.

[5] It is unfortunate that the data do not allow us to break this age category down into smaller age intervals. If that were possible, we could determine more precisely at what age the initial loss of educational capital is recovered.

[6] Schneider, Mary Jo, Donald E. Voth, and Diana M. Danforth, "Medical Screening for the Elderly: An Ounce of Prevention," *Arkansas Farm Research*, May/June, 1979a, p. 12 and Schneider, Mary Jo Grinstead, Diana Danforth, and Donald E. Voth "Well-Being as Perceived by Elderly People," *Arkansas Farm Research*, January/February, 1979b, p. 16.

[7] This seems to be a reasonable assumption, since the pattern has prevailed for the last four decades (Voth, 1984).

Editor's Note

Continuing with the new *Review* policy, this issue's *Arkansas Economic Perspectives* contains two articles about the Arkansas economy. Dr. Harry French, Associate Economist, reports on the economic outlook for the state as seen by members of the business, academic, and government communities. "A Consensus Economic Forecast for Arkansas Through 1990," is both interesting and informative.

A continuation of the research presented in the Summer 1989 issue of the *Review*, "Arkansas Per Capita Personal Income and Population in the 1980's," is also presented in *Arkansas Economic Perspectives*. "Employment Patterns in Arkansas: Their Relationship to Per Capita Income and Population in the 1980's" reports on an examination of 15 sample counties.

The Producer Price Index has been added, on a trial basis, to *Selected Arkansas and U.S. Economic Indicators*.

As serendipity would have it, the two major articles in this issue are also about Arkansas economic issues, thus the Fall 1989 *Review* is an All-Arkansas issue.

We welcome your comments.

DRM, Editor

The Arkansas Economy

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A Consensus Economic Forecast for Arkansas Through 1990

Harry A. French
Associate Economist
University of Arkansas, Fayetteville

Introduction

In early October, the Bureau of Business and Economic Research, in the annual exercise to provide timely economic and business information, mailed out a questionnaire on Arkansans' economic expectations through 1990. The survey sample consisted of 250 Arkansans whose occupations require them to be knowledgeable of economic events and trends at the local, regional, and national levels. The sample population was made up of 45 from academia, 164 from business, and 41 from government. The response rates were approximately 50 percent from the academics and about 25 percent each from the business and government groups. The overall response rate was 28 percent which, without follow-up, is statistically acceptable.

The cover letter and the questionnaire are included as Exhibits 1 and 2, respectively. Note that in Exhibit 2, entered beside each sub-item of Items 1 through 15 and 17 through 20, is the percentage distribution of responses to the item. For item 16, three separate percentages are shown for each year in the order of: (1) a "less than 50 percent chance;" (2) a "50 percent or better chance;" and, (3) a "100 percent chance." Note also that the percentage total for each item may not equal 100 percent because of rounding.

Discussion

Three items in the questionnaire relate directly to general economic welfare: in Item 16, respondents are asked to identify the likelihood that U.S. economic growth will continue through 1989 and 1990; in Item 20, respondents are asked to indicate how their financial status now relates to that of a year ago; and in Item 21, respondents are asked to anticipate how their financial status today will relate to that at the end of 1990. The responses to these three items perhaps yield the essence of the respondents' economic forecasts.

The consensus on Item 16 was that economic growth will continue through 1990. Specifically, 95% of the respondents predicted continued growth through 1989, with 22% calling it a "sure thing". For 1990, 88% visualized continued growth, but only 6% assessed the probability as a certainty. Even so, when asked to compare current financial well-being with that of one year ago, item 19, only 23% felt that 1989 was better than 1988; 61% thought their financial condition in 1989 approximated that of 1988; and 13 percent indicated that they were worse off in 1989 than in 1988. Responses to Item 21 reveal a less optimistic outlook for 1990. Only 20% expected to be better off than today; 62% anticipated being in about the same condition as today;

and 14% expected to be worse off in 1990 than they are today.

The responses to those three items taken together seem to imply significant optimism for the national economy but a troubled view of the state economy. These 1989 and 1990 predictions are less optimistic than were implied in the responses to last year's survey relating to 1988 and 1989.[1]

In Items 1 through 10, those surveyed were asked to indicate if they thought specific Arkansas economic indicators would (relative to 1988) be up, down, or about the same for 1989 and 1990. Respondents were also given the option to indicate "no opinion".

For 1989, pluralities of respondents (between 9 and 20 percentage points) predicted increases in *real wage rates*, *population growth*, and *farm cash receipts*; however, with regard to *consumer loans*, *retail sales*, and *total personal income* (not adjusted for inflation) a majority predicted improvement in 1989. A plurality of respondents (13 and 8 percentage points, respectively) saw both *new residential building* and *home mortgage rates* declining in 1989. A majority predicted that the 1989 unemployment would be between 7% and 8%. (The 1988 rate was 7.6%.) With regard to the availability of *capital funds* for expenditure in Arkansas on plant and equipment, a plurality of respondents (13 percentage points) was given to "about the same". When all responses are considered, the consensus forecast for 1989 seems to be that it will be a better year than 1988 but only moderately so.

The pattern of responses for the year 1990 were similar to those for 1989. Pluralities of respondents (between 5 and 20 percentage points) predicted increases in *real wage rates*, *consumer loans*, *retail sales*, *farm cash receipts*, *population*, and *total personal income* (not adjusted for inflation). An increase in the volume of new residential building was predicted by a narrow plurality (only 1 percentage point) over respondents who saw it remaining below the 1988 level. It should be noted that a high per cent of respondents indicated that they thought *residential building* activity in both 1989 (28%) and 1990 (26%) would be about the same as 1988. In comparison to 1989, in which a majority (61%) predicted an *unemployment rate* of between 7% and 8%, only 43% (a plurality of 10 percentage points) predicted the same range for 1990 while respondents predicting unemployment in the range of 8% to 9% increased from 7% to 17%.

The consensus of opinion for 1990, seems to be that it will be better than 1989, but the improvement will be less than the improvement of 1989 over 1988.

When asked about the *national inflation rate* (Item 11), the pattern of responses, regarding both 1989 and 1990, were similar. A near majority of 49% (1989) and a substantial proportion, 40% (1990), of the respondents predicted inflation in the 4% to 5% range.

The response pattern to Item 12 suggests uncertainty about the stock market. A majority of respondents (54%) thought that at the end of 1989, the *Dow Jones Industrial Average* would be below 2700; 41% predicted the 1989 close to be between 2700 and 3099. Within these broad ranges, 32% predicted the close to be in the 2600 to 2699 range; and 29% indicated the 2700 to 2799 range (Note: On October 2, 1989, the date of the questionnaire, the Dow closed at 2713.72; and on Friday - November 10, 1989, it closed at 2625.61.) The responses indicated a forecast for rising stock values. The proportion of respondents predicting a 1990 Dow close under 2700 was 34%; 57% predicted a 1990 close of 2700 or higher. Included in the latter group were 20% predicting a close between 2800 and 2899, and 17% predicting a close between 2900 and 3099.

Items 13 and 14, asked for, respectively, a list of: 1) *the most important economic influences*; and, 2) *the most serious economic problems*, for 1989 and 1990. The five most influential economic factors for 1989, as measured by frequency of responses were: 1st, "Federal Budget Deficit", (17%); 2nd through 4th, "National Debt", "Balance of Trade Deficit", and "Interest Rates," (tied, 13% each), and 5th and 6th, "Foreign Investment in the U.S." and "Money Supply" (tied, 7% each). The pattern of responses was almost identical for 1990. The most serious economic problems forecast for 1989 were: 1st, "Budget and Trade Deficit" (25%); 2nd, "Cost of Health Care, S & L Bailout, and Environmental Cleanup Programs" (19%); and, 3rd, "National Debt" (18%). As was the case with the most important influences on the economy, an almost identical pattern of responses was given for 1990.

Inflation ranked low on the list of economic problems facing the economy in 1989 and 1990; however, the respondents viewed the following as the most effective methods of maintaining a low inflation rate in 1989 (Item 15): "Increase Manufacturing Productivity" (23%); "Tighten Monetary Controls" (18%); "Offer an Interest Bonus on Savings"(17%); and, "Cap COLA Raises" (12%). A similar pattern of responses was given for 1990.

For the 1990, off-year elections, the most important campaign issues (Item 17), measured by frequency of responses, are: 1st,"Drug Abuse" (28%); 2nd, "Education" (24%); 3rd, "Taxes" (20%); and, 4th, "Environmental Pollution " (15%). Item 18 asked the respondents to indicate ways to offset the out-migration of teachers and young college graduates from Arkansas. The most frequent response was "Increase Teacher Salaries" (25%), followed by "Actively Seek New Industry from Out of State" (23%), "Activate Joint Government-Business Programs to Upgrade Skill Levels" (18%), and "Create More Economic Development Programs" (18%).

Conclusions

Generally, the economic mood seems to be one of wary watchfulness. Over the past two years, the degree of caution exhibited by the respondents has remained fairly constant. And while the prospect is one of cautious optimism for the national economy, the economic view about Arkansas seems less buoyant and more uncertain.

In passing, it's worth noting that casual observation reveals no obvious differences in the reported economic views of our three occupational groups. Perhaps the questionnaire lacked the subtlety to distinguish such differences. However, differences in the response rates among the groups are noteworthy but their causes are undeterminable from this survey.

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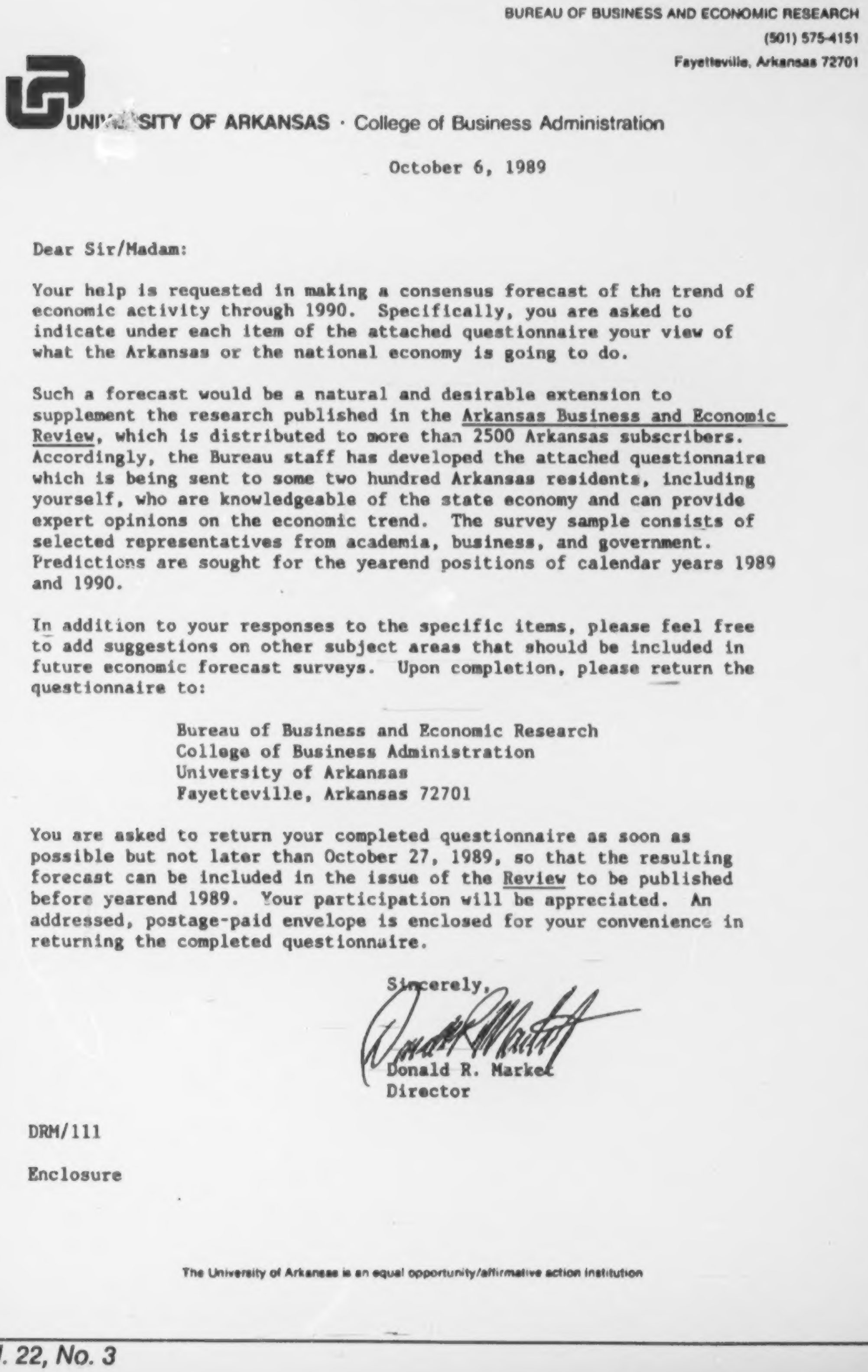
[1] Harry French, "An Economic Forecast for Arkansas Through 1989," *Arkansas Business and Economic Review*, Volume 21, Number 2, 1988, pp. 1-10.

Exhibit 1



BUREAU OF BUSINESS AND ECONOMIC RESEARCH
(501) 575-4151
Fayetteville, Arkansas 72701

UNIVERSITY OF ARKANSAS · College of Business Administration

October 6, 1989

Dear Sir/Madam:

Your help is requested in making a consensus forecast of the trend of economic activity through 1990. Specifically, you are asked to indicate under each item of the attached questionnaire your view of what the Arkansas or the national economy is going to do.

Such a forecast would be a natural and desirable extension to supplement the research published in the Arkansas Business and Economic Review, which is distributed to more than 2500 Arkansas subscribers. Accordingly, the Bureau staff has developed the attached questionnaire which is being sent to some two hundred Arkansas residents, including yourself, who are knowledgeable of the state economy and can provide expert opinions on the economic trend. The survey sample consists of selected representatives from academia, business, and government. Predictions are sought for the yearend positions of calendar years 1989 and 1990.

In addition to your responses to the specific items, please feel free to add suggestions on other subject areas that should be included in future economic forecast surveys. Upon completion, please return the questionnaire to:

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

You are asked to return your completed questionnaire as soon as possible but not later than October 27, 1989, so that the resulting forecast can be included in the issue of the Review to be published before yearend 1989. Your participation will be appreciated. An addressed, postage-paid envelope is enclosed for your convenience in returning the completed questionnaire.

Sincerely,

Donald R. Market
Director

DRM/111

Enclosure

The University of Arkansas is an equal opportunity/affirmative action institution

Exhibit 2

ECONOMIC CONDITION SURVEY

Part I: Estimated Key Economic Trends as of calendar yearends 1989 and 1990

Please indicate the word or phrase under each item which most nearly corresponds with your view. As a point of reference, unless specified otherwise, all change is to be estimated for the 1989 and 1990 yearend levels. **(Reference base = yearend 1988)**

1. Wage rates in real terms (taking inflation into consideration) in Arkansas will be:

1989		1990	1989		1990
16	Down	19	37	About the Same	43
46	Up	38	1	No Opinion	0

2. Total consumer loans in Arkansas for personal consumption expenditures will be:

1989		1990	1989		1990
9	Down	19	31	About the Same	29
57	Up	49	3	No Opinion	3

3. Availability of capital investment funds for expenditure in Arkansas on plant and equipment will be:

1989		1990	1989		1990
17	Down	22	48	About the Same	45
35	Up	33	0	No Opinion	0

4a. Value in current dollars of new residential building in Arkansas ($594.8 million in 1988) will be:

1989		1990	1989		1990
41	Below 1988 level	35	28	About the Same	26
26	Above 1988 level	36	6	No Opinion	3

b. Mortgage rates in Arkansas for home buying or home equity loans will be:

1989		1990	1989		1990
47	Down	43	39	About the Same	34
12	Up	21	2	No Opinion	3

5. Business activity in Arkansas as measured by retail sales will be:

1989		1990	1989		1990
4	Down	9	29	About the Same	24
67	Up	67	0	No Opinion	0

6. Unemployment rate in Arkansas (7.5% in July 1989) will be:

1989		1990	1989		1990
1	Under 6%	6	7	Between 8% & 9%	17
30	Between 6% & 7%	33	0	Over 9%	1
61	Between 7% & 8%	43	0	No Opinion	0

7. Civilian labor force in Arkansas (1,184,000 in July 1989) will be:

1989		1990	1989		1990
48	Up 1% or less	39	1	Up 5% to 7%	1
34	Up 1% to 3%	45	0	Up 7% or more	0
0	Up 4% to 5%	0	16	No Opinion	14

8. In comparison with the U.S. average, Arkansas' total population change (Arkansas' estimated change 1982 - 1988 was only 80% of the U.S. average, but for 1987 - 1988 was 140% of the U.S. average) will be:

1989		1990
16	Below the U.S. average	16
30	About the same as the rest of the country	27
46	Above the U.S. average	50
7	No Opinion	7

9. Total farm cash receipts in Arkansas for 1989 and 1990 in current dollars ($3,195 million in 1987 and $3,974 million in 1988) will be:

1989		1990
24	Below 1988 current dollar level	7
21	About the same as 1988 current dollar amount	24
44	Above 1988 current dollar level	40
12	No Opinion	28

10. Total annual Personal Income for Arkansans in current dollars (estimated 1988 annual total Personal Income = $29,478 million) will be:

1989		1990	1989		1990
1	Down	1	34	About the same	29
63	Up	67	1	No Opinion	3

11. General price level rise for consumers (1988 inflation = 4.1%) will be:

1989		1990	1989		1990
20	Up 2% or less	19	49	Up 4% to 5%	40
6	Up 2% to 3%	4	6	Up more than 5%	19
19	Up 3% to 4%	17	1	No Opinion	1

12. The Dow Jones Industrial Average (2713.72, at close 2 October 1989) will be:

1989		1990	1989		1990
0	Under 1900	1	29	Between 2700 & 2799	14
1	Between 1900 & 2199	1	12	Between 2800 & 2899	20
4	Between 2200 & 2399	13	0	Between 2900 & 3099	17
17	Between 2400 & 2599	11	0	Over 3100	6
32	Between 2600 & 2699	7	4	No Opinion	9

13. Check the five (5) issues that you feel will exert the most influence on the U.S. economy during the indicated year:

1989		1990
9	Inflation	9
13	National Debt	12
17	Federal Budget Deficit	17
3	Weather effects on agriculture and energy usage	2
2	Ecological imbalance and environmental pollution	3
7	Foreign investments in domestic markets	6
3	Foreign restrictions to open-market trading	4
3	Unemployment	2
2	Energy supply and cost	3
13	Balance of trade deficit	12
13	Interest rates	13
4	New federal laws, regulations or court decisions	5
7	Money supply	7
2	International economic and defense commitments	3
2	Other	2

14. In the United States, the three (3) most serious economic problems will be:

1989		1990
3	Foreign investment in the domestic market	3
2	Unemployment	1
8	Inflation	7
10	Manufacturing productivity and real growth	11
25	Budget and trade deficit	24
18	National debt	18
7	Interest rates	6
4	International exchange rates	5
19	Cost of Health Care, S & L Bailout, and Environmental Cleanup Programs	21
4	Other	4
1	"	0
0	"	0

15. Indicate those national approaches that you believe would maintain low inflation in the '90s:

1989		1990
7	Raise taxes on U.S. High Ticket & Import Items	6
9	Raise FRS Discount Rate	9
12	Cap COLA Raises	10
18	Tighten Monetary Controls	19
17	Offer an Interest Bonus on Savings	17
23	Increase Manufacturing Productivity	24
5	Encourage voluntary Wage Control	5
4	Other	5
1	"	2
2	"	3

16. What in your judgment is the percent chance (100% = certain) that the growth in the domestic economy will continue through 1989? 5; 95; 22 %, through 1990? 13; 88; 6 %

Part II: Other Current Items

17. Major campaign issues of the 1990 off-year election will be (check all appropriate choices):

20 Taxes
4 Unemployment
4 Inflation
24 Education
28 Drug Abuse
15 Environmental Pollution
6 Other:

18. In order to offset the outmigration "brain drain" of both teachers and young college graduates, Arkansas must (check all appropriate choices):

3 offer tax exemptions on pay for selective type of employment
25 increase teacher salaries
23 actively seek new industry from out of state
11 selectively provide more educational assistance but link to commitment on in-state employment
13 create more economic development programs
18 activate joint government-busines programs to upgrade skill levels
7 Other:

19. Most Arkansans that you know or work with believe that today they are financially (choose one):

23 better off than a year ago
61 about the same as a year ago
13 worse off than a year ago
3 no opinion

20. Most Arkansans that you know or work with believe that a year from now they will be financially (choose one):

20 better off than today
62 about the same as today
14 worse off than today
3 no opinion

Employment Patterns in Arkansas: Their Relationship to Per Capita Income and Population in the 1980's

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In the Summer 1989 issue of the *Review,* an analysis of the behavior of Per Capita Income and Population in the 1980's was presented.[1] Moreover, an "Index of Economic Vitality" was constructed based on both absolute levels and rates of change of Per Capita Income and population during the period 1980-87. The 75 counties were ranked according to the Index. In this issue the results of an analysis of employment patterns in a sample of 15 counties is presented.

The purpose of this analysis is to attempt to identify the characteristics among the counties that account for the differences in income and population behavior. The sample of counties was selected through a process that yielded 5 from the top third, 5 from the middle third, and 5 from the lowest third, as ranked according to the Index of Economic Vitality.

The Relationship Between Income and Employment Patterns

The amount of income that people earn is largely determined by the kind of work that they do, and their productivity. The kind of work that people do is determined by a myriad of factors: natural abilities, health, education, the characteristics of their parents, and, as some would say, pure luck, to name a few. However, the kind of work that is done and the productivity of those doing it, is also influenced by the bundle of resources that are available to them--natural, capital, and technological. Different endowments of resources will result in differences in the ways in which people live and work.

Prior to the industrial revolution, most of mankind's efforts were devoted to producing food. The fact was that most of the energy used to produce food originated with man or animals. Thus, food had to be produced so that man (and his domesticated animals) would have sufficient energy to produce more food. This food-energy-food cycle made for slow economic growth. The foregoing does not deny that the arts and sciences advanced prior to the industrial revolution, but most economic activity had to do with agriculture. In 1800, for example, approximately 80% of the U.S. population lived and worked on farms, and approximately 90% of the horsepower-hours of energy was generated by man and animals. Today, less than 5% of the U.S. population is engaged in agriculture, and over 90% of the energy originates from inanimate sources.

The industrial revolution was marked by the harnessing of inanimate energy and using it to do man's work. The steam engine, the internal combustion engine and hydroelectric power generation are examples. It was not coincidental that those areas that became the wealthiest had abundant endowments of inanimate energy sources--especially coal and petroleum--and the materials needed to harness it--iron ore and limestone.

As agriculture became more productive, people were released from food growing to do other things. Manufacturing employment grew as agricultural employment fell; urbanization rapidly followed. As the technology of manufacturing grew, still more people were able to engage in other occupations. The service industries grew upon the base provided by agriculture, the extraction industries, and manufacturing, as did the education industry, the arts, and the sciences. Here, the reader may sense the "chicken and egg" conundrum. Did the advances in education and the sciences cause the growth of the 19th and 20th centuries, or vice versa? This issue will be examined at a later date.[2]

Employment Patterns in the 1980's

The Sample

The following counties were drawn for the sample. The ranking of each according to the Index of Economic Vitality is shown in parentheses.

Bradley (57)
Cleveland (48)
Crawford (23)[3]
Cross (67)
Faulkner (3)[4]
Fulton (62)
Johnson (38)
Little River (33)
Lonoke (28)[4]
Madison (18)
Mississippi (43)
Phillips (72)
Pike (52)
Scott (13)
Sebastian (8)[3]

The counties in the sample represent all geographical areas of the state and all levels of economic performance. Four of the counties are parts of Metropolitan Statistical Areas (MSA's).

Employment data for the years 1980 and 1987 were employed and yielded the results discussed below.

Employment Growth Rates - 1980-1987

Table 1 presents the growth rates (in percentages) of total employment and seven sub-categories for the U.S., Arkansas, and the sample counties. The county data were aggregated, and further broken down to show the five highest ranked counties, the middle five, and the five lowest ranked counties.

The data reveal several meaningful differences among the U.S., Arkansas, and the sample group of counties. As expected, a close relationship exists between the employment growth rates and the levels of economic performance. Nonfarm employment among the five highest ranked counties grew faster than the U.S., Arkansas, and the lower ranked groups of counties. The second and third ranked groups of counties had lower growth rates than the U.S. or the state.

The most striking differences appear when manufacturing employment is examined. The top five counties grew in this category almost six times faster than the state as a whole. The second ranked group of counties had a decline in manufacturing employment, and the lowest ranked group of counties grew at a rate equal to about one-third of the top ranked group of counties. It is noted that manufacturing employ-

Table 1

Employment Growth Rates (%) by Type of Employment 1980-1987

	Total	Nonfarm	Private	Manufacturing	Retail & Wholesale Trade	FIRE[a]	Services	Govt.
U.S.	15.29	16.31	18.36	(5.80)	16.80	32.77	38.20	6.53
Arkansas	11.32	14.40	17.20	5.05	13.65	34.81	31.71	1.46
Sum of 15 Sample Counties	8.79	12.84	15.34	10.37[b]	D[c]	D[c]	24.65	0.41
Sum of 5 Highest Ranked Counties in Sample	23.62	26.05	29.68	29.83	D[c]	43.15	37.30	1.55
Sum of 5 Mid Ranked Counties in Sample	-0.03	4.23	3.83	-10.75	D[c]	D[c]	13.83	5.53
Sum of 5 Lowest Ranked Counties in Sample	8.77	13.93	12.52	9.51[b]	D[c]	29.32	20.13	20.34

[a] Finance, Insurance, and Real Estate.

[b] One county omitted. Data was not reported to avoid disclosure.

[c] Data was not reported for two or more counties to avoid disclosure.

Source: Derived from data contained in *Personal Income and Employment: 1969-1987*. U.S. Department of Commerce, Bureau of Economic Analysis, Washington, D.C. May 1989.

ment in the U.S. declined by 5.8% between 1980 and 1987.

Employment in the service industry within the top ranked group of counties grew at a rate that was about the same as the U.S., and was greater than the state or the other two groups of counties in the sample. This is consistent with the theory that expansion in the service sector is dependent on the levels of output in the agricultural, extractive, and manufacturing sectors.[5]

Percentage Distribution of Employment 1987

Table 2 presents the distribution of employment among the various categories for the U.S., Arkansas, and the sample group of counties. The inferences drawn from an examination of employment growth rates are given support when the distribution of income in 1987 is examined. Manufacturing employment, as a percent of total nonfarm employment, for the state was about 5 points above the U.S. percentage. The 15 sample counties, aggregated, were approximately 6 points above the state percentage; however, the top five counties' percentage was above the state percentage and that of the second and third ranked groups of counties. An examination of service employment reveals the expected. Service employment in the state is below the U.S. proportion; the proportion of the 15 sample counties is

Table 2

Per Cent Distribution of Employment
By Type of Employment
1987

	Total	Nonfarm	Private	Manufac-Turing	Retail & Wholesale Trade	FIRE[a]	Services	Govt.
U.S.	100.00	97.45	81.97	15.11	21.25	7.75	26.06	15.48
Arkansas	100.00	93.87	79.08	19.85	19.53	5.86	21.26	14.80
Sum of 15 Sample Counties	100.00	93.02	79.18	26.21	D[b]	4.46	19.63	13.84
Sum of 5 Highest Ranked Counties in Sample	100.00	95.45	85.51	28.72	17.91	4.77	21.91	9.94
Sum of 5 Mid Ranked Counties in Sample	100.00	89.85	68.71	23.80	D[b]	3.92	14.87	21.13
Sum of 5 Lowest Ranked Counties in Sample	100.00	88.48	71.61	19.85	18.29	4.12	18.81	16.88

[a] Finance, Insurance, and Real Estate.

[b] Data was not reported for two or more counties, to avoid disclosure.

Source: Derived from data contained in *Personal Income and Employment: 1969-1987*. U.S. Department of Commerce, Bureau of Economic Analysis, Washington, D.C. May 1989.

below that of the state; but, the top five counties' percentage of service employment is only slightly below the state proportion and higher than the lower ranked group of counties. (Note: A summary of statistical tests performed using the variables that have been discussed is available upon request.)

Summary, Conclusions, and Caveats

The data that has been examined in this preliminary investigation suggests the following:

1. Those counties that have attained the highest levels of per capita income and population, and those that have experienced the highest rates of per capita income and population growth, are those counties that have the highest proportion of their labor force engaged in manufacturing, and have had the fastest rates of growth in manufacturing employment. These counties also tend to be parts of Metropolitan Statistical Areas.
2. Those counties where the proportion of nonfarm employment is the highest (and farm employment is the lowest) are those counties that have the highest levels of per capita income and population, or have had, during the 1980's, the highest rates of growth of these variables.
3. Employment, in such categories as Retail & Wholesale Trade; Finance, Insurance, and Real Estate; and Services, tends to grow concurrently

with, though often at different rates than, the growth of the basic industries--agriculture, manufacturing, and mining. High productivity in these basic industries enables society to enjoy more services, both public and private. Moreover, growth of output in the "industrial sector" requires that larger proportions of the labor force be devoted to trade, for example. A major exception to these relationships exists. Specific geographic localities may experience increased income and population as a result of expanding service and trade industries when the increased service output is exported. The tourist and retirement industries are examples of this.

Policy Implications

One should not quickly conclude that the way to improve the lot of poor counties is to adopt policies designed to attract manufacturing industries. If resource endowments are not appropriate, manufacturing industries will probably not be attracted without the promise of significant subsidies. The question then arises about the benefits of policies relative to the costs; for example, Service and Trade Industries may result in significant additional benefits if they are producing for export, i.e., exporting services to other counties, states, etc. However, in the final analysis, the kind of work that we do, and our efficiency at doing it remain dependent on the bundle of resources with which we begin. A very large part of this bundle is a function of geology.[6]

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[1] Donald R. Market. "Arkansas Per Capita Personal Income and Population in the 1980's". *Arkansas Business and Economic Review*. Vol. 22, No. 2. Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Fayetteville, 1989, pp. 35-47.

[2] A classic treatment of the relationships among resources, technology, and social institutions is contained in Erich W. Zimmerman, *World Resources and Industries*. Harper & Brothers, Publishers. New York, 1951.

[3] Part of the Little Rock-North Little Rock MSA.

[4] Part of the Fort Smith, AR-OK MSA.

[5] Data on the service sector should be interpreted with caution for the following reason. Firms in the service sector may be "spin-offs" from firms that are in other sectors, eg., manufacturing, retail trade, etc. When a manufacturing firm contracts with computing firm, jobs are added to the service sector; however, if the manufacturing firm performed its own computing services, its computer personnel would be classified as holding jobs in the manufacturing sector.

[6] An examination of Arkansas in terms of its geologic regions is contained in Tim Arnold, *et. al. Socioeconomic Structure and Change in Four Arkansas Regions*. Arkansas Agricultural Experiment Station. Division of Agriculture. University of Arkansas, Fayettevelle, February 1989.

The Arkansas Economy Quarter III, 1989

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Arkansas Personal Income declined by an inflation adjusted 1.7% during the second quarter of 1989. This followed a 5.7% increase during the first quarter of the year. Personal Income for the U.S. also slowed during the second quarter to a 0.8% real increase after a 2.2% gain during the first quarter. These data are consistent with the performance of industrial production: Arkansas declined by 0.4% compared to a 1.5% increase during the first quarter; the U.S. gain was 0.7% in the second quarter compared to 0.6% during the first quarter.

The small decline in Personal Income during the second quarter of 1989 is offset by recent data that suggests a strong third quarter. In August, for the fifth consecutive month, the state seasonally adjusted unemployment rate fell. The August rate was 6.0% compared to the July rate of 7.8%. The July and August rates in the U.S. were 5.2% and 5.1%. respectively. The dramatic one-month decline in the state unemployment was the result of two factors: 1) the Civilian Labor Force, i.e., the number of job seekers, declined by 0.6% while, 2) the number of employed persons grew by 1.1%.

September labor force data, seasonally adjusted, show continued improvement with the unemployment rate falling to 5.8%. This improvement is spread over the entire state. The county data, not seasonally adjusted, show only two counties had double-digit unemployment rates in September 1989 compared to 10 in September 1988. During the same period the number of counties with unemployment rates equal to or below the U.S. rate (5.1%) grew from 9 to 29. (See Arkansas Labor Force Estimates on page 30.) The scheduled increases in the minimum wage will probably exert upward pressure on the unemployment in Arkansas and the U.S. The impact will most likely be on the 16 to 19 year old age group. Historically, this group has had the highest unemployment in the nation, and it has increased almost every time that the minimum wage has been increased.

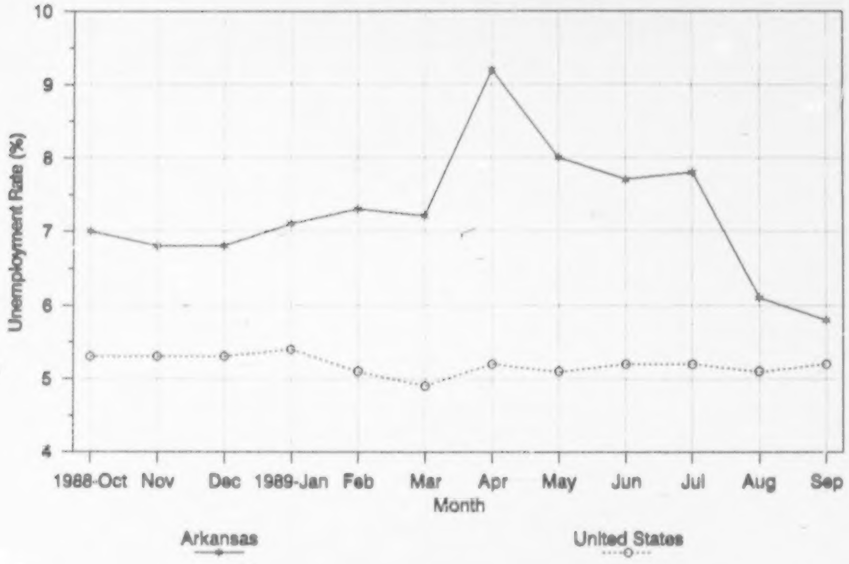
Also among the recent positive indicators are: 1) Cash Receipts from Farm Marketings grew by an inflation adjusted 15.2% compared with the U.S. increase of 1.8%; 2) Total Arkansas Construction Contracts grew by 31.0% during the third quarter of 1989; 3) Waterborne Freight Traffic on the McClellan-Kerr Arkansas River Navigation System increased by 10.8% during the third quarter; and, 4) state general revenue collections have exceeded forecast for the July-September period.

The recent improvements in the Arkansas economy are attributable, in part, to long term trends in the manufacturing sector. The Federal Reserve Bank of St. Louis reports that over the period 1963-86 manufacturing output has grown at a compound annual rate of 6.1% compared to 3.2% for the U.S. and 4.0% by the states in the Eighth Federal Reserve District (Arkansas, Kentucky, Missouri, and Tennessee). More recently, the Arkansas Employment Security Division reported that there has been a net gain of 4,700 manufacturing jobs between August 1988 and August 1989. Job losses in the durable goods sector (500) were offset by gains in the non- durable goods sector (5,200).

In summary, although Personal Income declined slightly during the second quarter, other data suggest that the third quarter will show real gains.

Unemployment Rates

Arkansas and U.S., seasonally adjusted



Arkansas Labor Force and Employment

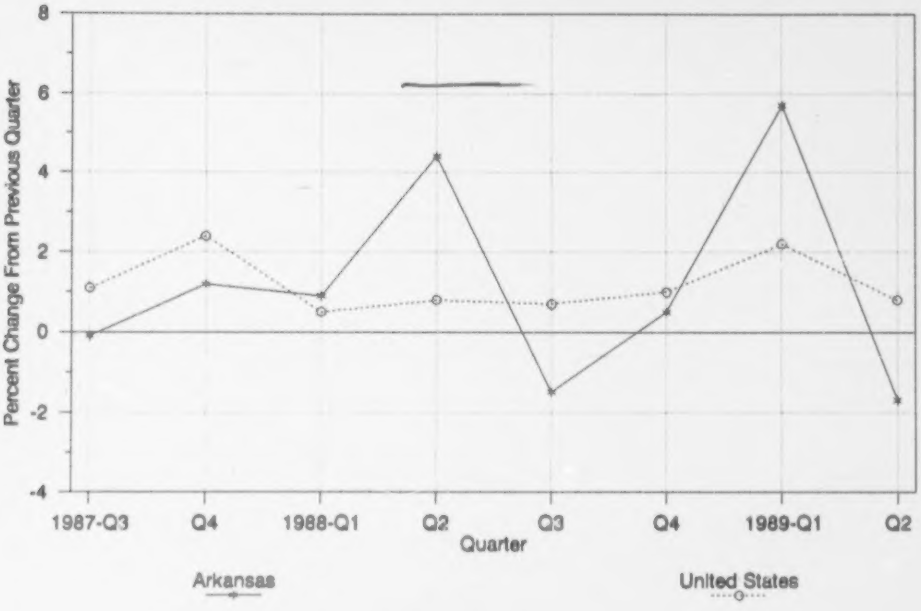
Seasonally adjusted in thousands

Year		Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate Arkansas	Unemployment Rate U.S.
1980		999.8	923.4	66.3	209.2	7.7	7.0
1981		1,032.8	938.6	64.5	209.7	9.1	7.5
1982		1,024.9	924.1	63.7	195.2	9.8	9.5
1983		1,028.4	924.3	62.6	199.6	10.1	9.5
1984		1,041.0	948.1	61.6	210.2	8.9	7.4
1985		1,051.7	960.7	46.2	210.3	8.7	7.1
1986		1,072.4	978.3	45.5	213.9	8.8	6.9
1987		1,091.5	1,002.4	44.8	219.6	8.1	6.1
1988		1,123.2	1,037.1	44.1	228.5	7.6	5.4
1988	Oct	1,129.3	1,048.2	43.8	230.4	7.0	5.3
	Nov	1,135.1	1,056.3	43.7	231.5	6.8	5.3
	Dec	1,143.8	1,063.9	43.8	232.6	6.8	5.3
1989	Jan	1,169.4	1,088.7	43.7	234.3	7.1	5.4
	Feb	1,163.5	1,080.8	43.9	234.1	7.3	5.1
	Mar	1,162.8	1,080.4	43.9	235.5	7.2	4.9
	Apr	1,169.9	1,063.8	43.7	235.2	9.2	5.2
	May	1,164.5	1,071.1	43.5	233.8	8.0	5.1
	Jun	1,154.5	1,065.8	43.4	235.1	7.7	5.2
	Jul	1,170.4	1,080.5	43.2	233.7	7.8	5.2
	Aug	1,164.0	1,092.8	43.2	234.3	6.1	5.1
	Sep	1,140.1	1,071.3	43.2	233.2	5.8	5.2

Source: U.S. data: *Economic Indicators*. Arkansas data: *Current Employment Developments Arkansas*, Employment Security Division.

Changes in Real Personal Income

Arkansas and U.S., quarterly, seasonally adjusted annual rates



Arkansas Personal Income

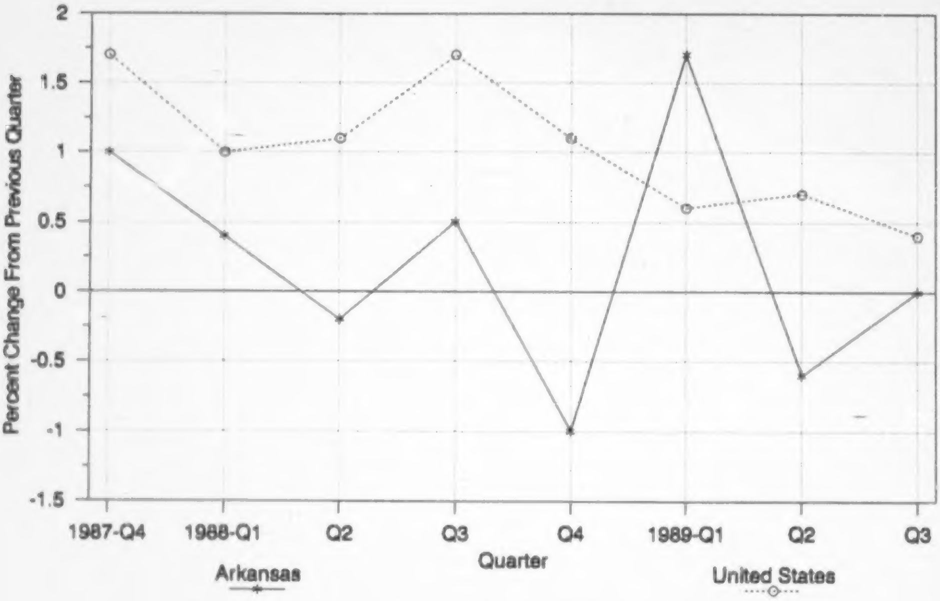
Seasonally adjusted annual rates in millions of dollars

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1980		17,097	8.5	11.0	19,950	-0.5	1.8
1981		19,140	11.9	11.6	20,362	2.1	1.8
1982		19,855	3.7	5.9	19,855	-2.5	-0.4
1983		21,158	6.6	6.3	20,364	2.6	2.3
1984		23,309	10.2	9.5	21,643	6.3	5.7
1985		24,838	6.6	7.0	22,397	3.5	3.9
1986		26,035	4.8	6.0	22,858	2.1	3.2
1988		29,263	7.3	7.6	24,111	3.8	4.1
1987	Q3	27,174	0.4	1.6	23,048	-0.1	1.1
	Q4	27,655	1.8	3.0	23,318	1.2	2.4
1988	Q1	28,033	1.4	1.0	23,518	0.9	0.5
	Q2	29,601	5.6	2.0	24,545	4.4	0.8
	Q3	29,468	-0.4	1.8	24,174	-1.5	0.7
	Q4	29,950	1.6	2.1	24,290	0.5	1.0
1989	Q1	31,965	6.7	3.2	25,675	5.7	2.2
	Q2	31,778	-0.6	1.9	25,241	-1.7	0.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis (Regional Economic Information System).

Changes in U.S.Industrial Production and Arkansas Value Added

Quarterly, seasonally adjusted annual rates



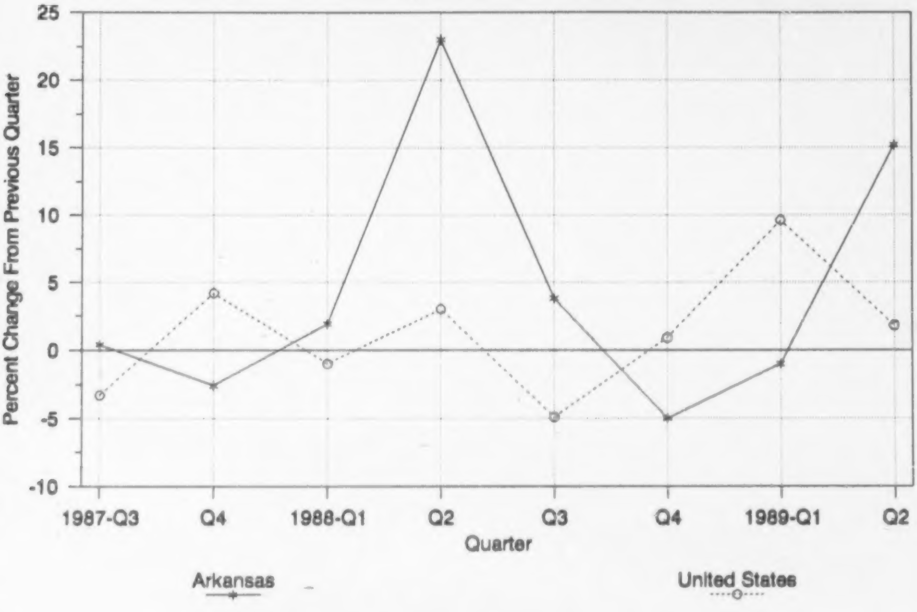
Arkansas Value Added by Manufacture

Seasonally adjusted annual rates in millions of dollars

Year		In Current $'s Arkansas Amount	 % Change	In Constant 1982 $'s Arkansas Amount	 % Change	 U.S. % Change
1980		6,650.0	-10.3	7,759.6	-17.7	-1.9
1981		7,436.6	11.8	7,911.3	2.0	2.2
1982		7,594.5	2.1	7,594.5	-4.0	-7.1
1983		8,238.3	8.5	7,929.0	4.4	5.9
1984		9,006.2	9.3	8,362.3	5.5	11.2
1985		9,331.0	3.6	8,413.9	0.6	1.9
1986		9,723.0	4.2	8,536.4	1.5	1.1
1987		10,389.2	6.9	8,844.1	3.6	3.8
1988		10,939.5	5.3	9,013.3	1.9	5.7
1987	Q4	10,675.3	1.6	9,001.1	1.0	1.7
1988	Q1	10,772.5	0.9	9,037.3	0.4	1.0
	Q2	10,872.4	0.9	9,015.3	-0.2	1.1
	Q3	11,048.0	1.6	9,063.2	0.5	1.7
	Q4	11,065.0	0.2	8,974.1	-1.0	1.1
1989	Q1	11,404.2	3.1	9,130.7	1.7	0.6
	Q2	11,454.0	0.4	9,076.0	-0.6	0.7
	Q3	11,450.7	0.0	9,073.5	0.0	0.4

Sources: Arkansas Value Added by Manufacture: BBER Computation. U.S. Industrial Production: "Production and Business Activity," *Economic Indicators.*

Changes in Real Cash Receipts from Farm Marketings
Arkansas and U.S., quarterly, seasonally adjusted annual rates

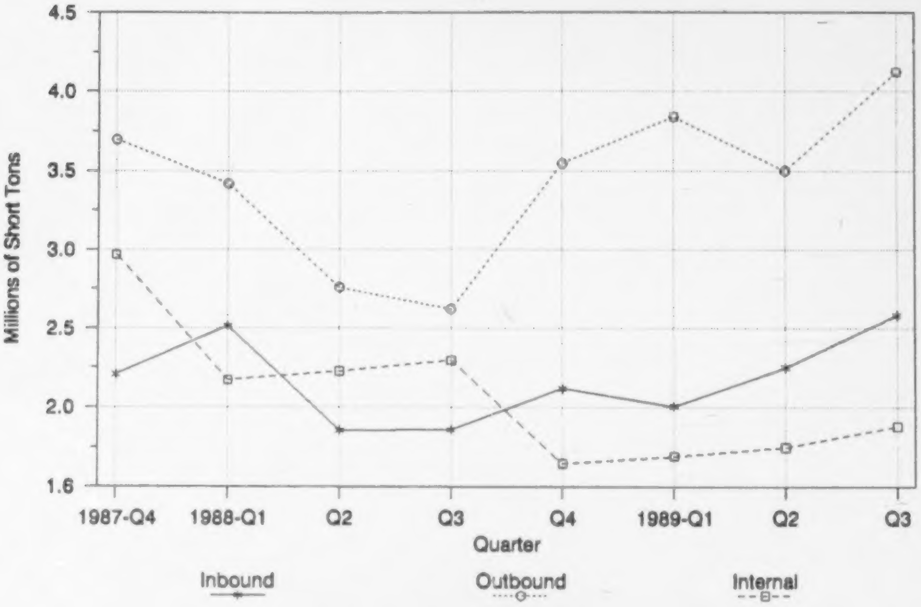


Cash Receipts from Farm Marketings
Seasonally adjusted annual rates in millions of dollars

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1980		3,105.9	1.4	-0.9	3,624.2	-7.0	-9.1
1981		3,391.4	9.2	11.5	3,607.9	-0.4	1.6
1982		3,254.0	-4.1	-1.7	3,254.0	-9.8	-7.6
1983		2,834.9	-12.9	-6.4	2,728.5	-16.1	-9.9
1984		3,475.0	22.6	14.3	3,226.5	18.3	10.3
1985		3,290.0	-5.3	-4.9	2,966.6	-8.1	-7.6
1986		3,034.1	-7.8	-3.6	2,663.8	-10.2	-6.1
1987		3,192.0	5.2	6.9	2,717.3	2.0	3.7
1988		3,939.2	23.4	3.5	3,245.6	19.4	0.2
1987	Q3	3,267.3	0.9	-2.8	2,771.3	0.4	-3.3
	Q4	3,200.7	-2.0	4.8	2,698.7	-2.6	4.2
1988	Q1	3,279.0	2.4	-0.5	2,750.8	1.9	-1.0
	Q2	4,082.0	24.5	4.2	3,384.8	23.0	3.0
	Q3	4,280.8	4.9	-3.8	3,511.7	3.8	-4.9
	Q4	4,115.2	-3.9	2.1	3,337.5	-5.0	0.9
1989	Q1	4,113.4	0.0	10.7	3,303.9	-1.0	9.6
	Q2	4,791.8	16.5	2.9	3,806.1	15.2	1.8

Sources: U.S. data: "Farm Income," *Economic Indicators*. Arkansas data: "Monthly Cash Receipts," USDA/ERS/NED.

Changes in Waterborne Freight Traffic
Seasonally adjusted

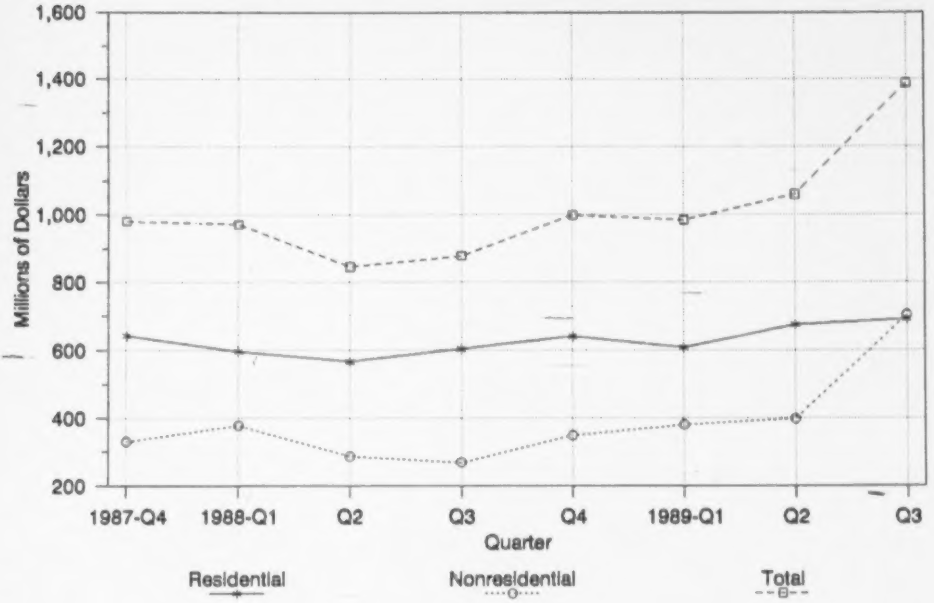


Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System
Seasonally adjusted annual rates in thousands of short tons

Year		Inbound		Outbound		Internal		Total	
		Total	% Change	Total	% Change	Total	% Change	Total	% Change
1980		1,615	-20.5	4,648	34.0	2,448	-10.0	9,151	2.5
1981		1,563	-3.2	5,710	22.9	1,774	-27.5	9,449	3.3
1982		1,525	-2.4	4,596	-19.5	1,517	-14.5	8,279	-12.4
1983		1,914	25.5	3,892	-15.3	1,910	26.0	8,005	-3.3
1984		2,126	11.0	4,288	10.2	2,453	28.4	9,486	18.5
1985		2,090	-1.7	3,152	-26.5	2,437	-0.6	8,290	-12.6
1986		2,618	25.3	3,416	8.4	3,101	27.2	9,733	17.4
1987		2,129	-18.7	3,385	-0.9	2,791	-10.0	8,884	-8.7
1988		2,086	-2.1	3,084	-8.9	2,084	-25.3	7,802	-12.2
1987	Q4	2,205	-3.5	3,695	15.9	2,965	22.4	8,977	5.9
1988	Q1	2,512	13.9	3,416	-7.5	2,170	-26.8	8,873	-1.2
	Q2	1,854	-26.2	2,757	-19.3	2,225	2.5	7,568	-14.7
	Q3	1,858	0.2	2,619	-5.0	2,293	3.1	7,302	-3.5
	Q4	2,117	13.9	3,545	35.4	1,646	-28.2	7,463	2.2
1989	Q1	2,005	-5.3	3,838	8.3	1,691	2.7	8,390	12.4
	Q2	2,248	12.1	3,498	-8.9	1,748	3.4	8,027	-4.3
	Q3	2,581	14.8	4,122	17.8	1,880	7.5	8,890	10.8

Source: Corps of Engineers Monthly Report — Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System, New Orleans District.

Arkansas Construction Contracts
Quarterly, seasonally adjusted annual rates



Arkansas Construction Contracts
Seasonally adjusted annual rates in millions of dollars

Year		Residential		Nonresidential		Total	
		Contracts	% Change	Contracts	% Change	Contracts	% Change
1980		641.1	-8.8	355.6	-7.1	993.8	-8.7
1981		632.8	-1.3	300.5	-15.5	935.9	-5.8
1982		648.0	2.4	280.4	-6.7	927.7	-0.9
1983		904.8	39.6	366.7	30.8	1,273.8	37.3
1984		917.5	1.4	466.6	27.2	1,387.8	9.0
1985		764.2	-16.7	455.2	-2.4	1,224.6	-11.8
1986		740.8	-3.1	415.4	-8.7	1,155.2	-5.7
1987		647.2	-12.6	406.3	-2.2	1,051.1	-9.0
1988		601.3	-7.1	320.2	-21.2	922.6	-12.2
1987	Q4	643.1	-1.0	330.3	-23.6	980.4	-9.5
1988	Q1	596.3	-7.3	377.2	14.2	970.4	-1.0
	Q2	566.1	-5.1	286.3	-24.1	845.2	-12.9
	Q3	602.9	6.5	268.9	-6.1	877.3	3.8
	Q4	640.0	6.2	348.3	29.5	997.7	13.7
1989	Q1	608.0	-5.0	379.5	9.0	983.9	-1.4
	Q2	673.9	10.8	397.4	4.7	1,059.9	7.7
	Q3	690.4	2.5	703.4	77.0	1,388.0	31.0

Source: *F. W. DODGE Construction Potentials*, McGraw-Hill.

ARKANSAS LABOR FORCE ESTIMATES
September 1989, Not Seasonally Adjusted

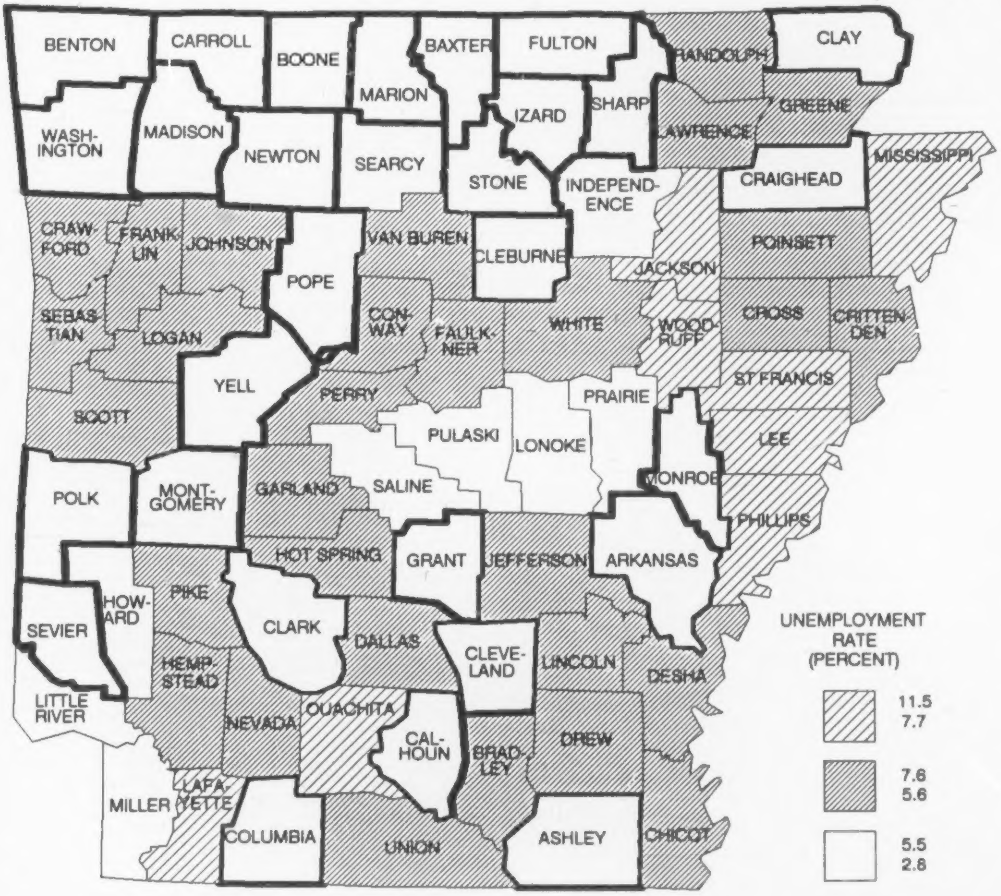
Area	Civilian Labor Force	Total Employment	Unemployment Rate
UNITED STATES	123,828,000	117,498,000	5.1
STATE OF ARKANSAS	1,153,000	1,089,100	5.5
Fayetteville-Springdale MSA	63,700	61,925	2.8
Fort Smith MSA	91,500	85,150	6.9
Little Rock-North Little Rock MSA	272,525	257,725	5.4
Pine Bluff MSA	38,625	36,325	6.0

County	Civilian Labor Force	Total Employment	Unemployment Rate	County	Civilian Labor Force	Total Employment	Unemployment Rate
Arkansas	11,325	10,900	3.8	Lee	4,375	3,975	9.1
Ashley	11,250	10,675	5.1	Lincoln	4,700	4,400	6.4
Baxter	11,825	11,250	4.9	Little River	5,875	5,550	5.5
Benton	54,750	53,175	2.9	Logan	9,725	9,150	5.9
Boone	15,425	14,750	4.4	Lonoke	18,025	17,100	5.1
Bradley	4,675	4,350	7.0	Madison	5,275	5,050	4.3
Calhoun	5,300	5,150	2.8	Marion	6,375	6,125	3.9
Carroll	11,375	11,000	3.3	Miller	17,900	16,925	5.4
Chicot	6,000	5,550	7.5	Mississippi	21,750	19,725	9.3
Clark	9,300	8,875	4.6	Monroe	5,350	5,100	4.7
Clay	9,500	9,050	4.7	Montgomery	2,875	2,750	4.3
Cleburne	9,100	8,700	4.4	Nevada	4,250	3,925	7.6
Cleveland	4,525	4,325	4.4	Newton	4,050	3,850	4.9
Columbia	13,075	12,450	4.8	Ouachita	13,925	12,775	8.3
Conway	8,325	7,825	6.0	Perry	4,725	4,450	5.8
Craighead	38,675	37,000	4.3	Phillips	9,750	8,700	10.8
Crawford	21,075	19,500	7.5	Pike	4,675	4,375	6.4
Crittenden	23,575	22,175	5.9	Poinsett	11,400	10,600	7.0
Cross	8,775	8,175	6.8	Polk	6,925	6,625	4.3
Dallas	4,325	4,050	6.4	Pope	25,400	24,250	4.5
Desha	7,550	7,000	7.3	Prairie	5,100	4,825	5.4
Drew	8,075	7,500	7.1	Pulaski	195,575	185,450	5.2
Faulkner	28,050	25,950	7.5	Randolph	7,275	6,750	7.2
Franklin	6,425	5,975	7.0	St. Francis	10,175	9,000	11.5
Fulton	4,025	3,825	5.0	Saline	30,875	29,225	5.3
Garland	30,825	29,025	5.8	Scott	5,825	5,500	5.6
Grant	6,925	6,650	4.0	Searcy	3,375	3,200	5.2
Greene	14,900	14,025	5.9	Sebastian	53,725	49,975	7.0
Hempstead	10,875	10,100	7.1	Sevier	6,800	6,500	4.4
Hot Spring	10,575	9,775	7.6	Sharp	6,625	6,350	4.2
Howard	6,300	5,975	5.2	Stone	4,375	4,200	4.0
Independence	16,175	15,325	5.3	Union	21,625	20,250	6.4
Izard	5,450	5,300	2.8	Van Buren	6,650	6,250	6.0
Jackson	8,800	8,025	8.8	Washington	63,700	61,925	2.8
Jefferson	38,625	36,325	6.0	White	25,650	24,025	6.3
Johnson	7,425	6,925	6.7	Woodruff	4,125	3,750	9.1
Lafayette	3,300	3,025	8.3	Yell	9,050	8,700	3.9
Lawrence	8,675	8,175	5.8				

Source: Labor Market Information for Arkansas Counties, Arkansas Employment Security Division, October 1989.

Labor Force Estimates
September 1989

In September, Arkansas' Civilian Labor Force shrank by 17,600 to total 1,153,000. Total Employment fell by 11,600 to total 1,089,100. Also, Unemployment fell 6,000 to total 63,900. Of the 75 counties, Calhoun, Izard, and Washington tied for the lowest unemployment rate, 2.8 percent, and St. Francis had the highest, 11.5 percent. Thirty-seven counties had unemployment rates equal to or below the state rate, 5.5 percent; but two counties exceeded 10 percent. Of the MSAs, Fayetteville-Springdale had the lowest unemployment rate, 2.8 percent, and Fort Smith, the highest, 6.9 percent. Unemployment rates for Little Rock-North Little Rock and Pine Bluff MSAs were 5.4 and 6.0 percent, respectively.


BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASH-INGTON
MADISON
NEWTON
SEARCY
IZARD
SHARP
LAWRENCE
GREENE
STONE
INDEPEND-ENCE
CRAIGHEAD
MISSISSIPPI
CRAW-FORD
FRANK-LIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBAS-TIAN
LOGAN
CON-WAY
FAULK-NER
WHITE
WOOD-RUFF
CROSS
CRITTEN-DEN
YELL
PERRY
PRAIRIE
ST FRANCIS
SCOTT
PULASKI
LONOKE
LEE
POLK
MONT-GOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
HOW-ARD
PIKE
CLARK
DALLAS
CLEVE-LAND
LINCOLN
DESHA
HEMP-STEAD
LITTLE RIVER
NEVADA
OUACHITA
CAL-HOUN
BRAD-LEY
DREW
MILLER
LAFA-YETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE (PERCENT)
▨ 11.5 7.7
▨ 7.6 5.6
☐ 5.5 2.8

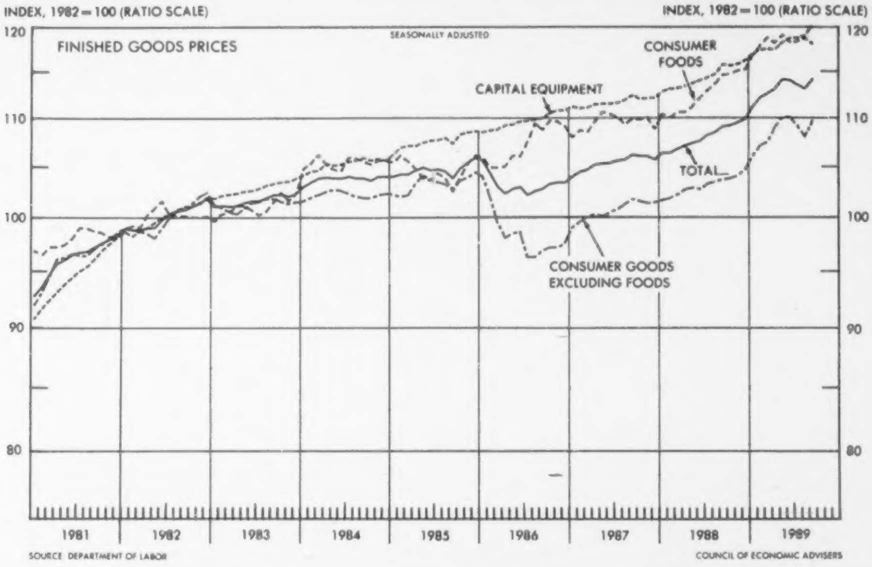
▬ Boundary lines of counties having an unemployment rate less than or equal to the national average of 5.1 percent.

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

PRICES

PRODUCER PRICES

In September, the producer price index for all finished goods rose 0.9 percent. Prices of finished consumer foods fell 0.6 percent and prices of other finished consumer goods rose 1.6 percent. Capital equipment prices rose 1.0 percent.



SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982=100; monthly data seasonally adjusted]

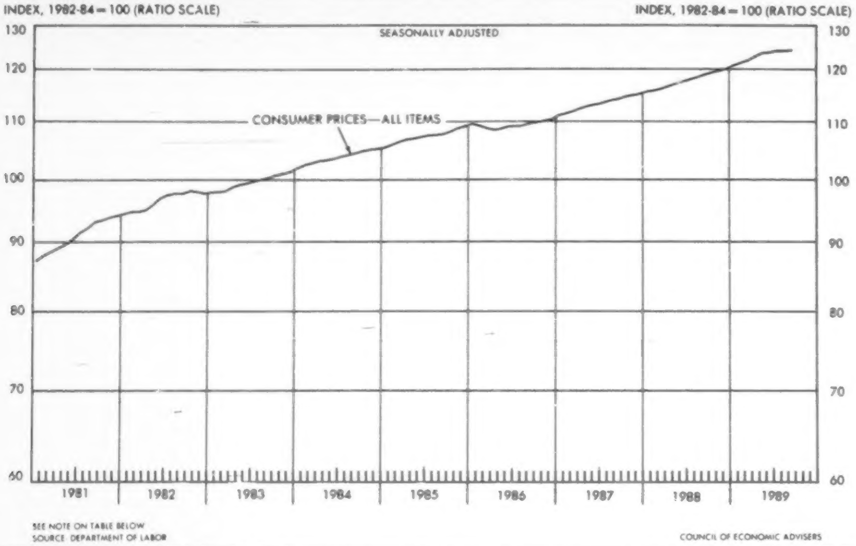
Period	Finished goods								Intermediate materials			Crude materials		
	Total finished goods	Consumer foods	Finished goods excluding consumer foods					Total finished consumer goods	Total	Foods and feeds [1]	Other	Total	Foodstuffs and feedstuffs	Other
			Total	Consumer goods			Capital equipment							
				Total	Durable	Nondurable								
1980	88.0	92.4	86.7	87.1	91.0	85.1	85.8	88.6	90.3	105.5	89.4	95.3	104.6	84.6
1981	96.1	97.8	95.6	96.1	96.4	95.8	94.6	96.6	98.6	104.6	98.2	103.0	103.9	101.8
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	101.6	101.0	101.8	101.2	102.8	100.5	102.8	101.3	100.6	103.6	100.5	101.3	101.8	100.7
1984	103.7	105.4	103.2	102.2	104.5	101.1	105.2	103.3	103.1	105.7	103.0	103.5	104.7	102.2
1985	104.7	104.6	104.6	103.3	106.5	101.7	107.5	103.8	102.7	97.3	103.0	95.8	94.8	96.9
1986	103.2	107.3	101.9	98.5	108.9	93.3	109.7	101.4	99.1	96.2	99.3	87.7	93.2	81.6
1987	105.4	109.5	104.0	100.7	111.5	94.9	111.7	103.6	101.5	99.2	101.7	93.7	96.2	87.9
1988	108.0	112.6	106.5	103.1	113.8	97.3	114.3	106.2	107.1	109.5	106.9	96.0	106.1	85.5
1988: Sept	109.1	114.6	107.3	103.7	115.1	97.6	115.7	107.3	108.6	115.3	108.2	97.1	113.1	83.1
Oct	109.2	114.7	107.4	103.8	115.0	97.8	115.6	107.4	108.6	115.1	108.3	96.6	113.4	82.0
Nov	109.5	115.1	107.7	104.1	115.0	98.3	115.8	107.8	109.0	113.2	108.8	94.8	108.8	82.1
Dec	109.9	115.2	108.2	104.7	115.4	98.9	116.2	108.2	109.5	112.3	109.4	97.8	110.8	85.6
1989: Jan	111.1	116.7	109.3	106.0	116.3	100.4	116.9	109.5	110.8	115.2	110.5	101.8	113.3	90.2
Feb	112.1	117.8	110.1	107.1	116.9	101.6	117.4	110.6	111.3	114.8	111.1	101.5	111.7	90.7
Mar	112.6	118.8	110.5	107.5	117.0	102.2	117.5	111.2	111.9	116.7	111.7	103.7	115.2	92.1
Apr	113.1	118.1	111.4	109.0	116.3	104.4	117.4	112.0	112.5	114.9	112.4	104.5	112.1	95.1
May [r]	114.1	119.1	112.5	110.1	117.2	105.7	118.2	113.1	112.7	113.6	112.6	104.9	112.1	95.8
June	114.0	118.2	112.6	110.1	117.4	105.6	118.7	112.8	112.4	111.8	112.4	103.0	109.4	94.5
July	113.5	118.3	111.9	109.1	117.1	104.3	118.7	112.1	112.2	113.6	112.1	103.2	108.2	95.4
Aug	113.1	118.7	111.3	108.0	117.5	102.6	119.0	111.5	111.9	113.4	111.8	101.2	110.0	91.3
Sept	114.1	118.0	112.9	109.7	119.1	104.4	120.2	112.5	112.3	113.6	112.2	102.3	109.1	93.5

[1] Intermediate materials for food manufacturing and feeds.

Source: Department of Labor, Bureau of Labor Statistics.

CONSUMER PRICES—ALL URBAN CONSUMERS

In September, the consumer price index for all urban consumers rose 0.2 percent, seasonally adjusted (0.3 percent not seasonally adjusted). The index was 4.3 percent above its year-earlier level.



[1982-84=100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1]		Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, shelter, and energy
					Shelter											
	Not seasonally adjusted (NSA)	Seasonally adjusted		Total [1]	Total	Renters' costs (Dec. 1982=100)	Homeowners' costs (Dec. 1982=100)	Maintenance and repairs (NSA)	Fuel and other utilities		Total [1]	New cars	Motor fuel			
Rel. imp. [3]	100.0	....	16.2	42.3	27.8	7.9	19.7	0.2	7.6	6.4	17.2	4.3	3.1	6.0	7.3	48.7
1980	82.4	....	86.8	81.1	81.0	....	....	82.4	75.4	90.9	83.1	88.4	97.4	74.9	86.0	80.6
1981	90.9	....	93.6	90.4	90.5	....	....	90.7	86.4	95.3	93.2	93.7	108.5	82.9	97.7	88.3
1982	96.5	....	97.4	96.9	96.9	....	....	96.4	94.9	97.8	97.0	97.4	102.8	92.5	99.2	95.1
1983	99.6	....	99.4	99.5	99.1	103.0	102.5	99.9	100.2	100.2	99.3	99.9	99.4	100.6	99.9	100.0
1984	103.9	....	103.2	103.6	104.0	108.6	107.3	103.7	104.8	102.1	103.7	102.8	97.9	106.8	100.9	105.0
1985	107.6	....	105.6	107.7	109.8	115.4	113.1	106.5	106.5	105.0	106.4	106.1	98.7	113.5	101.6	109.0
1986	109.6	....	109.0	110.9	115.8	121.9	119.4	107.9	104.1	105.9	102.3	110.6	77.1	122.0	88.2	112.7
1987	113.6	....	113.5	114.2	121.3	128.1	124.8	111.8	103.0	110.6	105.4	114.6	80.2	130.1	88.6	117.0
1988	118.3	....	118.2	118.5	127.1	133.6	131.1	114.7	104.4	115.4	108.7	116.9	80.9	138.6	89.3	121.9
1988:																
Sept	119.8	119.5	120.3	119.3	128.1	133.8	132.5	115.3	104.4	116.0	109.7	117.7	82.0	140.7	89.3	123.0
Oct	120.2	120.0	120.6	119.6	128.3	134.1	132.7	115.0	105.1	117.4	110.1	117.8	81.3	141.6	89.2	123.8
Nov	120.3	120.3	120.8	120.1	128.9	134.2	133.5	115.4	105.5	117.4	110.4	117.9	81.1	142.2	89.5	124.2
Dec	120.5	120.7	121.2	120.6	129.4	134.9	133.9	115.8	106.3	117.7	110.4	118.1	79.7	142.9	89.2	124.6
1989:																
Jan	121.1	121.4	122.1	120.9	129.7	135.2	134.2	116.1	106.9	117.7	111.2	118.9	80.5	144.0	89.9	125.4
Feb	121.6	121.9	122.6	121.3	130.3	136.4	134.7	117.1	106.7	117.5	111.9	119.3	81.8	145.2	90.4	125.8
Mar	122.3	122.5	123.6	121.7	131.1	138.2	135.1	117.1	106.9	119.1	112.6	119.7	83.6	145.9	91.4	126.3
Apr	123.1	123.3	124.2	121.8	131.2	137.3	135.6	117.3	107.4	119.4	115.0	119.8	93.0	146.6	96.1	126.6
May	123.8	124.0	125.0	122.3	131.8	137.3	136.5	117.4	107.6	120.4	116.1	119.6	96.6	147.6	97.6	127.2
June	124.1	124.2	125.3	122.6	132.3	138.1	136.9	118.3	107.1	119.1	115.9	119.3	95.4	148.7	96.6	127.4
July	124.4	124.5	125.7	123.3	133.2	140.2	137.5	118.4	107.6	118.1	115.2	118.8	93.3	149.8	95.9	127.6
Aug	124.6	124.5	125.9	123.5	133.5	139.6	138.1	118.5	107.5	116.3	114.3	118.5	89.5	150.8	94.0	127.7
Sept	125.0	124.7	126.2	123.6	133.7	138.5	138.8	118.6	107.6	118.3	113.7	118.0	87.6	152.0	93.2	128.2

[1] Includes items not shown separately.

[2] Household fuels—gas (piped), electricity, fuel oil, etc.—and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1988.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Data beginning 1987 and 1988 calculated on a revised basis.

Source: Department of Labor, Bureau of Labor Statistics.

Errata

Refer to Table 4, "Arkansas Per Capita Personal Income and Population in the 1980's," *Arkansas Business and Economic Review*, Volume 22, Number 2, pages 46 and 47. The two columns, 1980 and 1987, under the subtitle *Rank*, have been switched. Please replace 1980 with 1987 and 1987 with 1980 in order to have the correct MSA and County rankings by specific year.

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Arkansas Business and Economic Review

Bureau of Business and Economic Research

Volume 22

Number 4

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Dennis G. Beckmann

Selected Arkansas and U.S. Economic Indicators

Cumulative Index, 1988-89

ollege of Business Administration *University of Arkansas*

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Equipment Leasing After the 1986 Tax Reform Act: A Theoretical Analysis

Albert Y. Lew
Assistant Professor of Accounting
University of Wisconsin-Oshkosh

Introduction

Financial executives are often bewildered by the lease-or-buy decision whenever operating conditions of their firms require additions or replacements of equipment. While many intervening factors affect the decision, tax issues are, in general, puzzling ones that must be addressed. With the advent of the 1986 Tax Reform Act (TRA) and implementation of the changes brought forth in its wake, it has been widely held that "leasing now may be a more attractive alternative to taxpayers than the outright purchase of the needed equipment."[1] The purpose of this article is, therefore, to assess the impact of the changes in the tax law in conjunction with the cost of capital on the lease-or-buy decision.

Recent Tax Changes Relevant to Decision

Prior to the Tax Reform Act of 1986, there were five corporate tax brackets with the highest marginal rate equal to 46% of taxable income in excess of $100,000. The new tax law reduces the number of corporate tax brackets to three with the first $50,000 being taxed at 15%, the next $25,000 at 25% and any income in excess of $75,000 taxed at 34%. However, a corporation with taxable income in excess of $100,000 is taxed at 39% until the benefits of the lower tax rates are eliminated (IRC Section 11b). This occurs at $335,000.

The replacement of the Accelerated Cost Recovery System (ACRS) by the Modified Accelerated Cost Recovery System (MACRS) constitutes another major change in depreciation. Prior to TRA '86, most equipment was depreciated in five years using ACRS percentages of 15%, 22%, 21%, 21%, and 21% of the equipment's cost for years one through five, respectively. Under current provisions (Revenue Procedures 87-57), assets with useful lives of ten to sixteen years are depreciated over eight years, using double-declining balance for the first five years and switching to straight-line in Year 6. A half-year convention is used in the first year. Table 1 compares tax depreciation expenses for a $100,000 item of equipment with useful life of ten years under both old and new tax laws.

Apart from the simplification in tax rates and the less liberal allowance for depreciation, there are also changes made to investment tax credit and capital gain. During the pre-TRA '86 era, corporations were generally permitted an investment tax credit when tangible personal property

Table 1

Schedule of Depreciation Expense Under Both ACRS and MACRS

Year	ACRS %	Depreciation Expense	MACRS %	Depreciation Expense
1	15	$15,000	14.29	$14,290
2	22	22,000	24.49	24,490
3	21	21,000	17.49	17,490
4	21	21,000	12.49	12,490
5	21	21,000	8.93	8,930
6	--	0	8.92*	8,920
7	--	0	8.93	8,930
8	--	0	4.46	4,460
9	--	0	--	0
10	--	0	--	0

*Switch to straight-line in Year 6.

was placed into service (IRC Section 48). The investment tax credit was 6% of the cost of the asset for eligible 3-year-recovery period property and 10% on eligible property with a 5-year, or longer, recovery period. For assets placed into service after 1982 and before 1986, the depreciable basis was reduced by one-half of the investment tax credit claimed. In lieu of the basis reduction, the taxpayer could elect to reduce the tax credit percentage by two percentage points (i.e., the 10% was reduced to 8% and the 6% to 4%). Under current tax law, the investment tax credit has been repealed for assets acquired after December 31, 1985 (IRC Section 49a). Finally, Section 1231 gains arising from the disposition of assets at amounts greater than costs are no longer given preferential treatment but are, instead, taxed as ordinary income.

Impact of Tax Changes on Lease-or-Purchase Decisions

Do recent changes in the tax laws necessarily lead to increased leasing activities? The question has yet to be answered by empirical evidence.

But there is, nonetheless, a certain degree of intuitive appeal in the prediction. After all, the relative cost of both leasing and owning cannot be entirely independent of depreciation and changes in the tax rates. Even though the method of depreciation may not affect the cash outflows from leasing, it does have a direct impact on the cash outflows from owning a piece of equipment. With a reduction in depreciation allowances and a corresponding decrease in tax rates, it would automatically cause a reduction in the tax shield. This would, in turn, increase the relative cost of ownership. Furthermore, a decrease in tax rates may decrease the discount factor and thus result in a higher cash outflow from ownership. These revisions – coupled with the repeal of the investment tax credit and, to a lesser extent, the elimination of the preferential tax treatment for Section 1231 gains – enhance the incentives for leasing.

It must be pointed out, however, this rationale in favor of leasing over purchasing should not be accepted at face value. The lease-or-purchase decision is, necessarily, a complex problem which defies simplistic answers. What sounds intuitively appealing may or may not hold well when the analysis is performed on the overall interrelated factors. Changes in the tax law may affect separately the relative cost of each alternative. However, it is the examination of the interactive effects of some pertinent variables that will reveal the true picture.

The Traditional Framework for Decision

An analysis of the interactive effects of pertinent variables requires, simultaneously, an understanding of the conceptual framework for decision. Theoretically, the lease-or-buy decision involves both investing and financing dimensions. Most cases assume, for simplicity, that the investment decision has already been settled and the assessment is basically a matter of financial analysis. Under the cost-and-benefit framework, analysts would begin the problem by focusing on comparison between the relative cost of owning or of leasing the equipment. This is accomplished by discounting the respective cash outflow associated with the alternatives. The alternative that provides the lower present value amount is treated as the less costly.

Cost of Ownership

If a firm chooses to purchase the asset, an additional assumption is that it needs to borrow funds in order to finalize the transaction. To a large extent, the benefits, thus realized, stem from the tax shield arising from depreciation, interest, and maintenance expenses related to the equipment. The amount of tax savings depends also on the firm's tax rate, currently allowable depreciation for the tax purpose, and the cost of borrowing. Since the risk on the loan and the underlying asset is best captured by the firm's borrowing rate, the cost of ownership with 100 percent financing is computed by discounting the related net after tax cash outflow as follows:

$$PV_{fco} = \sum_{i=1}^{n} (ALP_i - TS_i) \times DF_i.$$

where ALP_i = Annual Loan Payment,
TS_i (Tax Shield) = (Depreciation_i + Interest_i + Maintenance_i) x Tax Rate,
DF_i (Discount Factor) = Cost of Capital x (1 - Tax Rate), and
n = the number of years.

Cost of Leasing

Alternatively, the cost of leasing is determined on the basis of the present value of all future lease payments as follows:

$$PV_{\text{flp}} = \sum_{i=1}^{n} \{LP_i \text{ x } (1 - TR)\} \text{ x } DF_i.$$

where LP_i = Lease Payment,
TR_i = Tax Rate,
DF_i = Discount Factor, and
n = the number of years.

These capital budgeting procedures of discounting often provide adequate, preliminary justifications for selecting a certain alternative. The analysis on the lease alternative, though being systematic and rational, is somewhat static and incomplete. Evidently, the analysis fails to give proper consideration to the theoretical basis for the determination of lease rental charges. Strictly speaking, any decision which precludes an analysis of the lessor's position on rental charge is, necessarily, dysfunctional. In reality, the opportunity to secure a favorable lease is wide open. Since difference in income tax rates and cost of capital among leasing companies may give rise to differences in rental charges, it makes strict business sense to include these differentials in the lessee's analysis.

A Modified Framework

Without fully considering the lessor's position in the lessee's analysis, the traditional framework of comparative cost can be dismissed as being removed from the sphere of everyday realities and economic facts. It is, therefore, necessary to extend the analysis to cover the process in which leasing companies determine their minimum lease rental payments. A minimum rental amount is one that passes all benefits of ownership onto the lessee but provides the lessor with a predetermined rate of return commensurate with the level of risk of the investment.

For simplicity, assume a lease transaction that involves only two parties without a third-party creditor to finance the purchase of the asset being leased. Thus, the minimum after-tax rent required by the lessor can be determined by (1) subtracting from the cost of the asset the present value of tax savings from depreciation and the present value of salvage, and adding the present value of annual maintenance expense, and (2) dividing the results by an annuity factor that reflects the after-tax cost of capital for the lessor. Algebraically, the minimum after-tax rent required by the lessor can be computed as follows:[2]

$$R_{\text{at}} = \frac{C - PV_{\text{dts}} - PV_{\text{sal}} + PV_{\text{me}}}{\sum_{t=1}^{N} \frac{1}{(1 + K_{\text{cat}})^t}}$$

where C is the cost of the asset,
N is the lease term in years,
PV_{dts} is the present value of tax savings from depreciation,
PV_{sal} is the present value of salvage at end of the lease term,
PV_{me} is the present value of maintenance expense, and
K_{cat} is the lessor's after-tax cost of capital.

The minimum before-tax rental in a lease is, alternatively, obtained from dividing the after-tax rental by the complement of the tax rate as follows:

$$R_{\text{bt}} = \frac{R_{\text{at}}}{(1 - \mathit{TaxRate})}$$

Lease or Buy--A Case Analysis

As indicated previously, the primary purpose of this article is to assess the potential impact of tax law changes together with the cost of capital on the lease-or-purchase decision. The approach taken is to analyze the decision through the traditional discounting framework but with an extension to cover the lessor's decision and the manner in which minimum lease charges are set. A 10% and a 20% cost of capital are used to differentiate low-risk from high-risk firms under each of the existing tax brackets of 15%, 25%, and 34%. The 39% bracket is, therefore, not illustrated. Pairing the cost of debt (k) with the tax rates (t), there are six possible lessors and lessees, respectively as follows:

1 $k = 10\%, t = 15\%$
2 $k = 10\%, t = 25\%$
3 $k = 10\%, t = 34\%$
4 $k = 20\%, t = 15\%$
5 $k = 20\%, t = 25\%$
6 $k = 20\%, t = 34\%$

The Lessors

Since the lessors' minimum rental charges are conditioned upon the tax rates and cost of capital, there are virtually six decisions faced by each lessee, with thirty-six lease-or-purchase decisions in the analysis (an assumed sample). Each decision relates to the same piece of equipment as follows:

Cost of equipment:	$100,000
Life of asset:	10 years
Term of loan to finance a purchase:	8 years
Term of lease:	8 years
Estimated value at end of lease:	$ 20,000
Estimated value at end of the 10th year:	0
Depreciation method: MACRS Depreciation for tax purpose	
Maintenance: 1% of cost of equipment or $1,000 per year	
Option to purchase: None	

And, applying the procedures to compute the lessors' minimum rent for the case results in the following possibilities:

Lessor	Lessor's Tax Rate	Lessor's Before Tax Cost of Capital	Before-Tax Minimum Rental Charge
1	15%	10%	$17,655
2	15%	20%	25,115
3	25%	10%	17,422
4	25%	20%	24,599
5	34%	10%	17,208
6	34%	20%	24,117

A casual observance of the lessor's minimum rentals confirms that they tend to decrease with an increase in tax rates but increase with an increase in the cost of capital. The change is more dramatic for differential cost of capital than for tax rates. Providing that a lower cost of capital is customarily associated with well-established firms and a higher cost of capital with small firms, it may be easier to negotiate a favorable lease from less risky firms than from small firms whose higher rental charges are constrained by their riskiness. Intuitively, it is less fruitful to shop around for leased properties among firms which merely differ in income tax rates.

The Lessee

From the lessee's standpoint, a keen awareness of the theoretical possibilities for differential rental payments enhances the practical chance of entering into a favorable lease arrangement. Being attentive to quantitative analysis is, however, no guarantee for making a correct decision. While a systematic and rational analysis increases the likelihood of making a better decision, it is by no means the optimal decision under which resources of the firm are most efficiently allocated. In the real world of business, optimality should be viewed in a relative sense, not in an absolute sense. This realistic outlook on decisions is typically required of all business decisions, but more so of lease-or-purchase decisions.

A systematic and rational analysis hinges essentially upon the comparison of the relative cost of purchase versus the lease alternative. Table 2 presents the computations of the net present value of all future cash outflows for a low-risk (k = 10%), low-income (t = 15%) lessee purchasing a $100,000, 10-year life item of equipment by borrowing on an 8-year term. The cost of purchase as indicated by the net present value amount of $78,984.47 is evidently less than the cost of leasing an identical piece of equipment from a low-risk (k = 10%), low-income (t = 15%) lessor who charges a minimum annual rental of $17,655 for an eight-year lease. The present value of all future cash outflows from leasing is $84,624 and is illustrated as follows:

Lease payment	$17,655
Tax shield: (Payment x Tax rate)	$2,648
Net cash outflow	$15,007
Annuity Factor	5.639
Net present value of leasing	$84,624

Results of future cash outflow discounting for each set of decisions under the thirty-six cases are shown in Table 3. For each set of decisions, the alternative selected is indicated by an (*) as being the less costly alternative. While in certain cases the comparative advantage may be insignificant, the overall results attest to the importance of the cost of capital and varying tax rates in the lease-or-purchase decision.

In general, higher minimum rental payments are associated with leasing companies having a higher cost of capital. Higher lease payments tend to discourage leasing. Lower minimum rental payments do not, however, rule out the viability of purchase. The important factor that stands out as having the greatest influence is the lessee's cost of debt, with lower rates providing greater incentive to purchase. This pattern of consistency prevails in all eighteen cases when the lessee's cost of capital is 10%. Hence, it can be concluded that firms with low cost of capital are better off by purchasing instead of leasing the needed equipment.

For lessees having a 20% cost of capital, the results are inconclusive. There are nine cases which support leasing and an equal number of cases which indicate a preference for purchasing the equipment. There appears to be a tolerance interval for rental payments to increase. Once the upper limit of this interval has been reached, leasing becomes less attractive even for firms with higher cost of capital. In this respect, the assumed attractiveness of leasing is not well-supported by the analysis.

The influence of tax rate changes on the lease-or-buy decision is rather limited. Without question, the amount of tax

Table 2

Schedule of Present Value Computations to Illustrate Cost of Purchase for a $100,000 Item of Equipment

Year	Loan Payment	Interest Amortization	Depreciation Expense	Maintenance Expense	Tax Shield	Cash Outflow	Discount Factor	PV of Cash Outflow
1	$18,744	$10,000.00	$14,290	$1,000	$3,793.50	$14,950.50	0.922	$13,779.26
2	18,744	9,125.60	24,490	1,000	5,192.34	13,551.66	0.849	11,511.53
3	18,744	8,163.76	17,490	1,000	3,998.06	14,745.94	0.783	11,544.71
4	18,744	7,105.74	12,490	1,000	3,089.36	15,645.64	0.722	11,295.98
5	18,744	5,941.91	8,930	1,000	2,380.79	16,363.21	0.665	10,882.28
6	18,744	4,661.70	8,920	1,000	2,187.26	16,556.75	0.613	10,148.38
7	18,744	3,253.47	8,930	1,000	1,977.52	16,766.48	0.565	9,471.83
8	18,749	1,704.42	4,460	1,000	1,074.66	17,673.93	0.521	9,202.28
					Total Present Value of Cash Outflow			$87,836.25
					Less Present Value of Salvage			8,851.38
					Net Present Value of Purchase			$78,984.87

Table 3

Lessee's Comparative Cost of Lease/Buy Alternative

Lessor's				Lessee's Cost of Capital			
Tax Rate	Cost of Capital	Rent Payment	Lessee's Tax Rate	10%		20%	
				Buy	Lease	Buy	Lease
15%	10%	$17,655	15%	$78,985*	$ 84,624	$85,605	$63,134*
			25%	70,675*	77,556	78,301	59,416*
			34%	62,816*	70,669	71,097	55,535*
25%	10%	17,422	15%	78,985*	83,507	85,605	62,301*
			25%	70,675*	76,532	78,301	58,632*
			34%	62,816*	69,736	71,097	54,802*
34%	10%	17,208	15%	78,985*	82,482	85,605	61,537*
			25%	70,675*	75,593	78,301	57,913*
			34%	62,816*	68,881	71,097	54,129*
15%	20%	25,115	15%	78,985*	120,382	85,605*	89,812
			25%	70,675*	110,328	78,301*	84,523
			34%	62,816*	100,531	71,097*	79,001
25%	20%	24,599	15%	78,985*	117,911	85,605*	87,968
			25%	70,675*	108,063	78,301*	82,787
			34%	62,816*	98,467	71,097*	77,379
34%	20%	24,117	15%	78,985*	115,599	85,605*	86,244
			25%	70,675*	105,945	78,301*	81,165
			34%	62,816*	96,537	71,097*	75,863

*Lower Cost Alternative

savings from the buy alternative depends on both depreciation and applicable tax rates. On the lease alternative, the tax shield pertaining to the lessee is again a function of rental payments and the tax rate. Since the analysis has been extended to cover the lessor's position on the rental payment, the overall effect of tax rate changes may be neutralized. When combined with the lessee's cost of capital, a change in tax rate does have considerable influence on the decision. Specifically, the most favorable combination for leasing as reflected by the analysis is a lower lease payment ($17,208) for a high-risk (k = 20%), low-income (t = 15%) lessee, renting the equipment from a low-risk (k = 10%, high-income (t = 34%) lessor. Under this case, the low cost of capital and the higher tax rate creating a larger tax shelter for the lessor lead to a smaller rental charge. At the same time, the lessee's high cost of capital prevents him from purchasing the equipment through borrowing.

Conclusions

The lease-or-purchase decision is a multidimensional issue of enormous complexity. Predictions generalized from a narrow focus on each tax law change are necessarily erroneous. The multidimensional analysis in this article does not support the outright perception which favors leasing. Leasing provides only limited incentives for firms with high cost of capital. On the contrary, firms with low cost of capital should be able to reap more benefits from purchasing than from leasing their equipment. The most realistic conclusion than can be drawn from the analysis is that the lease-or-purchase decision is, to a large extent, situational. The decision should, therefore, be settled on an individual basis depending upon the situational variables discussed in this article.

Nevertheless, leasing is an important issue worth examining because it carries with it many qualitative benefits that should not be overlooked. As examples, payments on a lease can be expensed while principal on a loan to finance the purchase cannot. Leasing represents 100% financing that will not tie up a firm's cash in the form of a down payment. Lease agreements are generally free from restrictive covenants that may be tacked onto a loan agreement. And finally, a lease may be easier to obtain than a bank loan, if a company's assets are not liquid. These qualitative factors can sometimes tip the balance in favor of leasing.

But, whenever a financial executive hears that question, "Yes, but wouldn't we be better off leasing?" he or she should better address the question in a systematic and rational manner before supplying the answer. Even when the analysis reveals the advantage of one alternative over the other, there is still a need to weigh the non-quantifiable costs and benefits with respect to the company's position. There are, in essence, no short answers to some issues in the ever-changing world of business, and the lease-or-buy decision is certainly one of them.

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[1] Nicholas J. Fiore, "Lease is More," *Journal of Accountancy*, August, 1988, p. 12.

[2] This framework represents a revised version of Clark and Elgers' decision model. For a detailed description, see John J. Clark and Pieter T. Elger, *The Lease/Buy Decision*, (London: The Free Press, 1980), pp. 76-9.

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Estimating the Tourists Among the Travelers: A First Approximation

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Introduction

Much has been written and said about the tourist industry in Arkansas. On occasion, debate on the importance of tourism to the Arkansas economy has suffered from ambiguities about the meanings of the terms **tourist** and **traveler**. Since all travelers are not tourists, formulation of policies designed to promote the tourist industry would benefit from reasonable estimates of tourist activity. This paper presents an attempt to provide an approximation of the part of travel activity that is attributable to tourist activity. Part II presents definitions of travel and tourism; Part III describes the theory and methodology for estimating tourist activity; Part IV offers the empirical evidence; and Part V discusses the conclusions.

Definitions

The working definitions of **Traveler** and **Tourist** in this paper are adapted from the *1977 Census of Transportation, National Travel Survey*[1] which defined travel as ". . . any trip extending 100 miles or more from origin to destination." The *Survey* also reported data gathered on the main purpose of trips, state of origin, state of destination, etc. Purpose-of-trip data are classified as follows: 1) Visit Relatives or Friends; 2) Business; 3) Convention; 4) Outdoor Recreation; 5) Entertainment; 6) Sightseeing; 7) Personal or Family Affairs or Medical; 8) Shopping; and, 9) Other. The Census of Transportation definition excludes certain types of travel: 1) trips taken by a person acting as member of the crew of a train, bus, truck, plane, or ship; 2) trips taken by students between home and school; 3) trips taken by members of the military service while on active duty; and trips taken in commuting to and from work. The Arkansas Department of Parks and Tourism reported that in 1987 there were 15.4 million travelers (measured in person-trips) to, or through, Arkansas.[2] These person-trips are presumed to include people engaged in business travel, personal travel, travel through the state with another state as the destination, and people who are tourists with an Arkansas destination, to name but a few. These total person-trips encompass the total amount of **travel** activity for all nine purposes cited.

Our working definition of **tourist** is a person traveling for purposes of entertainment, recreation, or sightseeing or any combination, (items 4, 5, and 6, above) and usually to a specific location such as a lake, national or state park, amusement park, or race-track as opposed to one who is traveling on business or to see friends or relatives.

Theory and Methodology

It is postulated that the volume of travelers to a location is largely a function of the location's population size. For example, cities such as Little Rock would attract more travelers than would towns like Mountain View because of the larger size. It would be expected that Little Rock would attract more business travelers and more travelers for personal reasons (seekers of medical or legal services, visiting relatives, shopping, etc.) than would Mountain View.

If this hypothesis is correct, then the number of travelers to a location should be predictable from the population size. County population data along with travel data reported by the Arkansas Department of Parks and Tourism make it possible to test this hypothesis. If county population underpredicts the number of travelers to an area the difference between actual and predicted number of person-trips would have to be explained by something other than population size alone. One explanation would be tourism.

Empirical Evidence

The first step in testing the hypothesis that travel is a function of population size was to fit a linear regression equation to the county population and person-trips data for the 75 Arkansas counties.[3] The results were those that theory predicted. Sixteen counties were identified where actual person-trips significantly exceeded the predicted amounts. These counties could be placed into one of two categories: 1) counties located on interstate highways or 2) counties with readily identifiable tourist attractions. The former group included Pope (Russellville) and Miller (Texarkana); counties in the latter included Garland (Hot Springs) and Stone (Mountain View). (See Tables 1 and 2). Each of these counties had visitors (person-trips) per capita well above the state average.

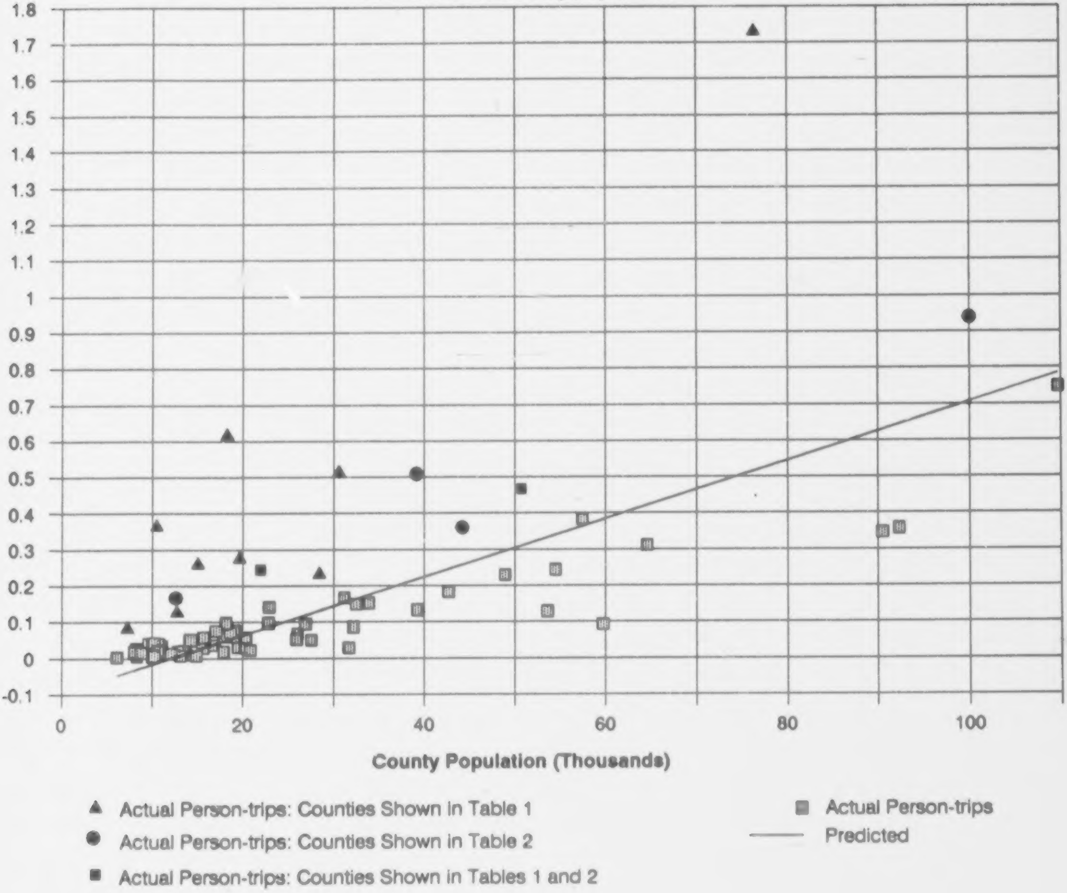
In order to further refine the estimation process, the eleven counties with identifiable tourist attractions were removed from the estimating equation. The revised equation was statistically significant and about 93% of the variations in person-trips were explained by variations in county population size.[4] As happened in the first approximation, the equation underpredicted the volume of person-trips to the counties shown in Tables 1 and 2. Table 3 presents results of the estimation process. It shows 1987 population, actual person-trips, predicted person-trips, the difference between actual and predicted person-trips, and the ratio of actual person-trips to resident populations. These data are graphically presented in Figure 1. Counties where actual person-trips were less than predicted have not been fully examined, but appear to be explainable when certain groupings of counties are considered. For example, three counties in the Little Rock-North Little Rock MSA – Faulkner, Lonoke, and Saline – had less than predicted person-trips; one – Pulaski – had more. When the four counties are treated as a single unit the volume of actual person-trips is not significantly different from the predicted volume. Similar results occur when Washington, Benton, Carroll, and Madison Counties and Sebastian and Crawford Counties are aggregated.

The analysis indicates that of about 15.4 million person-trips to, or through, Arkansas in 1987 (as reported by the Arkansas

Figure 1

1987 Person-trips to Arkansas Counties

Actual & Predicted by Population



NOTE: Pulaski County is not shown.

Department of Parks and Tourism), an estimated 3.5 million were tourists. This inference was drawn from the following: those counties where travel volume was greater than expected, based on population, were also counties that had tourist attractions. The data also show that tourist activity tends to be concentrated in the 11 counties shown in Table 1; these counties contain about 12% of the Arkansas population. It should be stressed that these findings indicate the **relative** economic importance of **tourism** at the county level, not the economic importance of **total travel** at either the state or county levels. Moreover, it cannot be inferred that tourist activity is limited to the eleven counties; undoubtedly, there is something about every county that would be attractive to some tourist. However, the data indicate concentration of tourism in a small number of counties.

These findings are consistent with the data for Arkansas reported in the 1977 *National Travel Survey* which shows the following information about the travelers surveyed (See Table 4).

(1) Of all person-trips to, or through, Arkansas, 49.1% were to Arkansas destinations. Of this number, 35.1% originated in Arkansas.

(2) Of the person-trips with Arkansas destinations, the purpose-of-trip distribution was:

Visit Relatives or Friends	47.2%;
Business	15.9%;
Convention	1.1%;
Outdoor Recreation	7.1%;
Entertainment	4.3%;
Sightseeing	6.2%;
Personal, etc.	14.0%;
Shopping	0.5%;
Other	3.7%.

(3) The three purposes embodied in our working definition of tourist account for 17.5% of all person-trips. The "non-tourist" categories account for 82.5%.

(4) Of the person-trips with Arkansas destinations 62.0% were classified as "not a vacation trip."

Implications of the National Travel Survey Data

The ratios calculated from this data (Table 4) when applied to the 1987 person-trip data reported by the Arkansas Department of Parks and Tourism yields a lower estimate of tourist activity than yielded by the regression model. For example, of the 15.4 million person-trips reported for 1987, 49.1% (7.6 million) were to Arkansas destinations; of this number 17.5% (1.3 million) would be calculated to be tourists. Of this estimate of tourists, 35.1% (464 thousand) would be person-trips that originated in Arkansas, and 64.9% (859 thousand) that originated outside of Arkansas. When the *Survey* data is applied to the regression estimate of tourist person-trips (3.5 million) the following results emerge: 1.2 million person-trips by tourists originated in Arkansas; and, 2.3 million originated outside of Arkansas.

Summary, Conclusions, and Caveats

The results of the research reported in this paper should be interpreted with caution. Two estimates of tourist person-trips were presented: the first (3.5 million) was based on the 1987 relationship between population and travel activity; the second (1.4 million) was a modification of the first using 1977 *National Travel Survey* data. These two estimates should be considered the upper and lower bounds of the minimum amount of annual tourist activity in Arkansas.

The nature of the data used probably placed a downward bias on the estimates of travelers and, therefore tourists. First, since only trips extending over 100 miles were included in the *National Travel Survey*, an unknown number of trips originating from within and without Arkansas were not counted, Second, the working definition of tourist (based on main purpose-of-trip information) used here was sufficiently restrictive to exclude secondary trip purposes that could very well have been "tourist related", i.e., related to entertainment, recreation, and sightseeing. For example, the decision to take a trip to visit family or friends could be influenced by tourist attractions, as could the decision to hold a conference or convention at a particular site.

Even when these reservations are taken into account, the following conclusions can be made: First, tourist travel is some fraction of total travel activity. Second, of all travel in Arkansas, only half has an Arkansas destination; only a part of that is tourist travel, and some part of tourist travel originates inside of the state. Third, tourist activity is not evenly distributed over the state; however, the tourist industry is important to those counties where tourist activity is concentrated. Fourth, total travel activity, like tourist activity, while evenly distributed, is important to the local economies where it is concentrated.

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[1] *1977 Census of Transportation, National Travel Survey*. U.S. Department of Commerce, Bureau of the Census, Washington, D.C.

[2] *1988 Arkansas Tourism and Travel Report*. Arkansas Department of Travel and Tourism, One Capital Mall, Little Rock, Arkansas 72201, March 1989. Also see *1987 Arkansas Tourism and Travel Report*, same source.

[3] County population data are estimates by the Bureau of Economic Analysis, U.S. Department of Commerce. County level person-trips data are estimates by the Arkansas Department of Parks and Tourism and published in the sources cited in endnote 2.

[4] See footnote a of Table 3.

Table 1

Eleven Arkansas Counties With Readily Identifiable Tourist Attractions*

County & Major City	Tourist Attraction(s)
BAXTER (Mt. Home)	Norfork Lake; Bull Shoals Lake; and proximity to Buffalo National River
BOONE (Harrison)	Proximity to Bull Shoals Lake and Table Rock Lake; Dog Patch Amusement Park; proximity to Buffalo National River
CARROLL (Eureka Spgs.)	Eureka Springs; Holiday Island; Beaver Lake
CLARK (Arkadelphia)	DeGray Lake (Also on Interstate 30)
CLEBURNE (Heber Spgs.)	Greers Ferry Lake
CRITTENDEN (W. Memphis)	Southland Race Track (Also on Interstate 40 and 55)
GARLAND (Hot Springs)	Hot Springs National Park; Oaklawn Race Track; Lake Hamilton; Lake Ouachita
MARION (Yellville)	Bull Shoals Lake; proximity to Buffalo National River
MONTGOMERY (Mt. Ida)	Lake Ouachita
STONE (Mt. View)	Mountain View; Ozarks Folk Center; Blanchard Springs Caverns
VAN BUREN (Clinton)	Fairfield Bay Resort; proximity to Greers Ferry Lake

*This table is not offered as a list of all counties in Arkansas with tourist attractions, only those that meet the following conditions: 1) actual person-trips are greater than predicted; and 2) the ratio of person-trips to population is greater than the state average.

Table 2

Counties on U.S. Interstate Highways

County & Major City	Interstate Highway
CLARK (Arkadelphia)	Interstate 30 (Also See Table 1)
CRITTENDEN (West Memphis)	Interstate 40; Interstate 55 (Also See Table 1)
MONROE (Brinkley)	Interstate 40 (also U.S. 49 and 79)
MILLER (Texarkana)	Interstate 30
POPE (Russellville)	Interstate 40
PULASKI (Little Rock)	Interstate 430 connecting with Interstate 30 and Interstate 40
SEBASTIAN (Fort Smith)	Interstate 540 connecting with Interstate 40

*This table shows those counties on interstate highways that meet the following conditions: 1) actual person-trips that are greater than predicted; and 2) the ratio of person-trips to population is greater than the state average.

Table 3

Arkansas Counties
1987 Population and Person-trips (Actual and Predicted)

County	Population	Person-trips		Actual Less Predicted	Ratio of Person-trips to Population
		Actual	Predicted[a]		
Arkansas	22,800	98,796	86,547	12,249	4.33
Ashley	26,000	68,639	112,252	(43,613)	2.64
Baxter[b]	30,800	519,000	150,810	368,190	16.85
Benton	92,300	358,000	644,832	(286,832)	3.88
Boone[b]	28,500	228,161	132,334	95,827	8.01
Bradley	12,900	18,000	7,021	10,979	1.40
Calhoun	6,100	4,000	(47,602)	51,602	0.66
Carroll[b]	18,300	615,440	50,399	565,041	33.63
Chicot	16,900	37,070	39,153	(2,083)	2.19
Clark[b,c]	22,200	244,067	81,727	162,340	10.99
Clay	19,400	32,000	59,235	(27,235)	1.65
Cleburne[b]	19,600	284,074	60,841	223,233	14.49
Cleveland	8,300	7,000	(29,930)	36,930	0.84
Columbia	26,900	95,359	119,482	(24,123)	3.54
Conway	19,100	61,596	56,825	4,771	3.22
Craighead	64,500	312,031	421,518	(109,487)	4.84
Crawford	42,700	182,955	246,401	(63,446)	4.28
Crittenden[b,c]	50,700	460,196	310,664	149,532	9.08
Cross	20,300	30,556	66,464	(35,908)	1.51
Dallas	10,400	19,000	(13,061)	32,061	1.83
Desha	19,100	78,316	56,825	21,491	4.10
Drew	17,900	61,000	47,186	13,814	3.41
Faulkner	54,500	244,860	341,189	(96,329)	4.49
Franklin	15,600	30,414	28,710	1,704	1.95
Fulton	10,300	41,042	(13,864)	54,906	3.98
Garland[b]	76,500	1,728,245	517,913	1,210,332	22.59
Grant	13,700	12,000	13,447	(1,447)	0.88
Greene	31,700	29,037	158,039	(129,002)	0.92
Hempstead	22,900	142,622	87,350	55,272	6.23
Hot Spring	27,600	50,029	125,105	(75,076)	1.81
Howard	13,400	21,419	11,038	10,381	1.60
Independence	32,500	150,070	164,466	(14,396)	4.62
Izard	11,100	34,295	(7,438)	41,733	3.09
Jackson	20,400	57,530	67,268	(9,738)	2.82
Jefferson	90,500	347,241	630,373	(283,132)	3.84
Johnson	18,600	72,393	52,809	19,584	3.89
Lafayette	9,600	40,761	(19,487)	60,248	4.25
Lawrence	18,100	99,069	48,792	50,277	5.47
Lee	14,900	8,219	23,087	(14,868)	0.55
Lincoln	13,100	8,000	8,628	(628)	0.61
Little River	14,100	48,907	16,661	32,246	3.47
Logan	20,800	22,655	70,481	(47,826)	1.09
Lonoke	39,200	133,693	218,286	(84,593)	3.41
Madison	12,100	13,384	595	12,789	1.11
Marion[b]	12,800	127,000	6,218	120,782	9.92
Miller[c]	39,100	506,228	217,483	288,745	12.95

Table 3 (Cont.)

County	Population	Person-trips Actual	Person-trips Predicted[a]	Actual Less Predicted	Ratio of Person-trips to Population
Mississippi	57,400	384,997	364,484	20,513	6.71
Monroe[c]	12,800	169,856	6,218	163,638	13.27
Montgomery[b]	7,900	85,194	(33,143)	118,337	10.78
Nevada	10,800	41,404	(9,848)	51,252	3.83
Newton	8,200	26,401	(30,733)	57,134	3.22
Ouachita	33,900	152,729	175,712	(22,983)	4.51
Perry	8,000	19,000	(32,340)	51,340	2.38
Phillips	32,200	86,414	162,056	(75,642)	2.68
Pike	10,200	43,123	(14,668)	57,791	4.23
Poinsett	25,900	53,010	111,449	(58,439)	2.05
Polk	17,000	76,598	39,956	36,642	4.51
Pope[c]	44,100	355,443	257,647	97,796	8.06
Prairie	10,000	5,000	(16,274)	21,274	0.50
Pulaski[c]	358,100	2,961,939	2,779,973	181,966	8.27
Randolph	16,800	36,569	38,349	(1,780)	2.18
St Francis	31,200	168,094	154,023	14,071	5.39
Saline	59,700	93,488	382,960	(289,472)	1.57
Scott	10,600	22,000	(11,454)	33,454	2.08
Searcy	8,800	15,234	(25,914)	41,148	1.73
Sebastian[c]	100,200	926,870	708,292	218,578	9.25
Sevier	14,200	51,097	17,464	33,633	3.60
Sharp	15,700	59,386	29,513	29,873	3.78
Stone[b]	10,300	371,011	(13,864)	384,875	36.02
Union	48,900	229,798	296,205	(66,407)	4.70
Van Buren[b]	15,300	268,271	26,300	241,971	17.53
Washington	109,700	748,319	784,604	(36,285)	6.82
White	53,600	129,783	333,960	(204,177)	2.42
Woodruff	10,200	7,000	(14,668)	21,668	0.69
Yell	17,900	19,000	47,186	(28,186)	1.06
Sum of 64 Counties in Model	2,098,300	10,672,805	10,672,810	0	5.09
Sum of 11 "Tourist" Counties	290,100	4,718,592	1,267,707	3,450,885	16.27
Sum of all Arkansas Counties	2,388,400	15,391,397	11,940,517	3,450,885	6.44

[a] Estimating Equation:
Person-Trips Per Year = -96,603.06 + 8.03288 (County Population)
R2 = .935095
F Statistic = 893.24 (Significant at 0.0001 level)

[b] Counties with Identifiable Tourist Attractions that meet the conditions set forth in Table 1.

[c] Counties located on interstate highways and meet the conditions set forth in Table 2.

Sources: Population data — Bureau of Economic Analysis, U.S. Department of Commerce. Person-trips data — 1988 Travel and Tourism Report. Arkansas Department of Parks and Tourism. Little Rock, Arkansas. 1989

Table 4

Travel to and Through Arkansas by Selected Trip Characteristics
Measured in Person-trips

					To Destinations in Other States			
Trip Characteristics	All Travel to or Through Arkansas	Percent	Travel to Destinations in Arkansas	Percent	Spent One or More Nights in Arkansas	Percent	Passed Through Arkansas	Percent
Total	13,647,000	100.0%	6,703,000	100.0%	1,899,000	100.0%	5,045,000	100.0%
[Per Cent of All Travel]	[100.0%]		[49.1%]		[13.9%]		[37.0%]	
Main Purpose of Trip								
Visit Relatives or Friends	6,316,000	46.3%	3,161,000	47.2%	752,000	39.6%	2,403,000	47.6%
Business	2,038,000	14.9%	1,069,000	15.9%	206,000	10.8%	763,000	15.1%
Convention	282,000	2.1%	77,000	1.1%	98,000	5.2%	107,000	2.1%
Outdoor Recreation*	808,000	5.9%	474,000	7.1%	111,000	5.8%	223,000	4.4%
Entertainment*	783,000	5.7%	288,000	4.3%	144,000	7.6%	351,000	7.0%
Sightseeing*	1,090,000	8.0%	415,000	6.2%	303,000	16.0%	372,000	7.4%
Personal or Family Affairs or Medical	1,897,000	13.9%	936,000	14.0%	204,000	10.7%	757,000	15.0%
Shopping	56,000	0.4%	33,000	0.5%	0	0.0%	23,000	0.5%
Other	377,000	2.8%	251,000	3.7%	80,000	4.2%	46,000	0.9%
Vacation or Other Trip								
Vacation Trip	6,392,000	46.8%	2,458,000	36.7%	1,471,000	77.5%	2,463,000	48.8%
Not a Vacation Trip	7,127,000	52.2%	4,159,000	62.0%	428,000	22.5%	2,541,000	50.4%
Not Reported	128,000	0.9%	87,000	1.3%	0	0.0%	41,000	0.8%
Trip Originated In Arkansas	4,846,000	35.5%	2,353,000	35.1%	175,000	9.2%	2,318,000	45.9%
Trip Originated Outside of Arkansas	8,801,000	64.5%	4,350,000	64.90%	1,724,000	90.78%	2,727,000	54.05%
Main Purpose of Trip Indicated by * (tourists)	2,681,000	19.6%	1,177,000	17.6%	558,000	29.4%	946,000	18.8%
Main Purpose of Trip All Others	10,966,000	80.4%	5,527,000	82.4%	1,340,000	70.6%	4,099,000	81.2%

Source: Adapted from *1977 Census of Transportation, National Travel Survey*, U.S. Department of Commerce, Bureau of the Census, Washington, D.C.

Industrial Linkages, Tourism, and the Arkansas Economy

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Introduction

Policies to promote Arkansas economic development have long been a concern of government at the state, county and local levels. Policies have been implemented to achieve the goals of increased income and employment. Some policies have been general in scope, e.g., investment tax credits, while others have been industry specific, e.g., education.

This study utilizes an Input-Output Model of Arkansas[1] to estimate the effect of an increase in demand for the output of industries related to travel and tourism on the overall State economy. An Input-Output model is especially useful in this type of investigation because it can be used to quantify the linkages among the various industries in the state. It can also be used to estimate the impact that an increase in demand for the output of one or more industries may have on the output of other industries. Part II of this paper describes the theory of "linkages" among industries. Part III presents the industries that are associated with travel activity. Part IV analyzes the impact of increased travel expenditures; Part V then examines the policy issues; and Part VI contains the summary and conclusions.

Theory of Linkages in Input-Output Analysis

The existing firms within the Arkansas economy, and the linkages between them, are major determinants of the economic benefit that will result from the implementation of any economic development strategy.

Within an economic system, an industry has two kinds of economic impact on the other industries. The first is through the "backward linkage," which is the demand that a given industry as a purchaser of intermediate inputs has on the other industries within the economy. An increase in the demand for the output of one industry will in turn require that industry to buy more intermediate inputs from other sectors of the economy, and perhaps to buy more imported inputs. When an industry imports most of its input needs, then it is said that the industry has a *weak* backward linkage within the economy. However, if the industry purchases most of its inputs from within the economy, then it has a *strong* backward linkage. Obviously, an industry with a strong backward linkage is desirable because an increase in demand for its output will draw heavily upon other industries within the state's economy.

The second type of economic impact operates through the "forward linkage," which is the ability of an industry to supply the intermediate needs of all other industries within the economy. If an industry is fairly small within an economy, i.e., has a "weak" forward linkage, it may be unable to meet an increase in the demand for intermediate goods by other industries. Thus, increased demand for intermediate inputs would be met by an increase in imports rather than an increase in output of the resident industry. For example, if an Arkansas industry, e.g., air conditioner manufacturing, used large amounts of steel, but the state had no steel producing industry, then an increase in demand for air conditioners would cause a increase in steel imports. Of course, it would be desirable to have industries with both strong forward linkages and strong backward linkages.

Although there are many ways in which to quantify the degree of backward and forward linkages, three different measures are offered in this report:

(1) Impact on gross sales,
(2) Impact on employment, and
(3) Impact on wages and salaries.

Each of these measures provides information on the nature of linkages within the state. As to which measure is most appropriate would depend on the objective of policy makers. An economic development policy with emphasis on "job creation" would focus on attracting a different type of industry than would a policy with emphasis on gross sales or wages and salaries.

The Arkansas industries with strong backward and forward linkages with respect to gross sales, employment, and wages and salaries are presented in Tables 1, 2, and 3, respectively. Each of these industries not only has strong linkages but also accounts for at least 0.15% of the total value added in the state.

Table 1

Arkansas Industries with Strong Forward and Backward Linkages to Gross Sales

Input-Output Number	Industry
37	Primary Nonferrous Metals Manufacturing
26	Chemicals and Selected Chemical Products
30	Petroleum Refining and Related Industries
36	Primary Iron Steel Manufacturing
4	Agricultural, Forestry and Fishery Services
6	Nonferrous Metal Ores Mining

Source: Derived from Arkansas Input/Output Model (See Endnote 1). Input/Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

Table 2

Arkansas Industries with Strong Forward and Backward Linkages to Employment

Input-Output Number	Industry
73	Eating and Drinking Places
75	Amusements
71	Hotels; Personal and Repair Services
76	Health, Education, Social Services and Non-profit Groups
72	Business Services
68	Wholesale and Retail Trade
64	Transportation and Warehousing

Source: Derived from Arkansas Input/Output Model (See Endnote 1). Input/Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

Table 3

Arkansas Industries with Strong Forward and Backward Linkages to Wages and Salaries

Input-Output Number	Industry
76	Health, Education, Social Services and Non-profit Groups
72	Business Services
64	Transportation and Warehousing
68	Wholesale and Retail Trade
13	Ordinance and Accessories
55	Radio, TV, and Communications Equipment
73	Eating and Drinking Places
65	Communications, Except Radio and TV
75	Amusements
12	Maintenance and Repair Construction
71	Hotels; Personal and Repair Services
46	Metalworking Machinery and Equipment
9	Stone and Clay Mining and Quarrying
48	General Industrial Machinery and Equipment

Source: Derived from Arkansas Input/Output Model (See Endnote 1). Input/Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

Industries Associated with Travel Activity

The terms "Travel Industry" and "Tourist Industry" are commonly used; however, there are no such industrial classifications extant. Moreover, the terms "travel" and "tourist" are often used as though they were interchangeable when tourism, e.g., travel for recreational purposes, is but a subclass of the general category of travel. Unless otherwise indicated "travel" will refer to all trips whatever the purposes.

There is a group of industries with standard industrial classifications that is drawn upon by those who engage in travel activity. These industries are shown in Table 4. These industries were identified on the basis of information from the U.S. Travel Data Center which reveals that the average traveler allocates his/her travel expenditures in the following proportions: public transportation – 6.4%; automobile transportation – 18.2%; lodging – 15.0%; eating and drinking places - 36.4%; amusements – 10.8%; and miscellaneous retail

Table 4

Industries Related to Travel

Input-Output Number	Industry and Subcategory
64	Transportation and Warehousing
	Taxicabs and Intercity Highway Transport
	Water Transportation
	Air Transportation
68	Wholesale and Retail Trade
	General Merchandise
	Automobile Dealers
	Gasoline Service Stations
	Miscellaneous Retail
	Drug and Proprietary
71	Hotels; Personal and Repair Services
	Hotels, Motels and Tourist Courts
	Trailer Parks and Campsites
73	Eating and Drinking Places
75	Amusements
	Motion Pictures
	Amusements and Recreational Services

Source: Derived from Arkansas Input/Output Model (See Endnote 1). Input/Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

outlets – 13.1%. A comparison of Table 4 with Tables 1, 2, and 3 reveals three interesting features:

(1) Industries identified with travel activity are not among those listed as having strong *gross sales* linkages. Moreover, other than eating and drinking places (which have a strong backward linkage but weak forward linkage), the remaining industries related to tourism are weakly linked both backward and forward.

(2) The industries in the state identified as having strong linkages with respect to *employment* are those most often identified with travel. This is not surprising since the seven travel related industries reported in Table 2 tend to be labor intensive. This tendency, in conjunction with their indirect effects on employment in other sectors, explains the appearance of these industries in Table 3, but not in Table 1 which identifies industries with strong linkages to *gross sales*.

(3) Finally, those industries having strong linkages to wages and salaries, Table 3, are more numerous than industries with strong linkages either to gross sales, Table 1, or to employment, Table 2, even so, Table 3 also lists industries related to travel and tourism.

Two points should be stressed: first, Tables 1 through 3 report information about the **entire** Arkansas economy; second, the identified industries were determined without the benefit of any weighting scheme for what might be a socially desirable policy regarding the various industries within the state. Both points are relevant when considering the impact of tourism within the state. Research reported elsewhere in this issue of the *Review*,[2] the 1976 study by Troutman and Opitz,[3] and the annual reports of the Arkansas Department of Parks and Tourism[4] indicate that travel activity tends to be regional-specific. Thus any increase in travel activity may primarily benefit specific regions within the state and, perhaps, have very minor indirect impact on the remaining areas of the state. Further, the regional-specific impact may be in areas already experiencing relatively high degrees of economic well-being while relatively depressed areas remain unaffected.

It is worth noting that the industries reported in Table 1 (Gross Sales) tend to be in the manufacturing sector while the industries in Tables 2 (Employment) and 3 (Wages and Salaries) tend to be in the nonmanufacturing sector. Thus, if the objective of economic development is to encourage employment or wages and salary growth or both, emphasis should be placed on policies which would benefit the latter two industries. Encouraging travel may be one such policy.

Direct and Indirect Effects of a Dollar of Travel Expenditure

In addition to identifying the linkages within an economy, Input/Output analysis can also be used to determine the direct and indirect effects of a change in final demand. In other words, an additional dollar spent has the initial direct impact on one industry, but a fraction of that dollar is spent on intermediate inputs supplied by other industries within the economy. At a second level, the increase in demand for intermediate inputs would require the intermediate industries to increase their demand, etc. A dollar of new expenditures leads to a multiple increase in final demand.

In this section the direct and indirect effects of travel expenditures are examined. First, however, the reader should be cautioned about certain definitional ambiguities. The word "tourist" usually implies a person who travels for recreation, entertainment, or sightseeing as opposed to a person who travels for business or personal reasons. The expenditure patterns of a business traveler are not totally unlike those of the recreational traveler and the industries that have been identified as associated with tourism are also associated with other motives for travel.

In analyzing the impact of an additional travel dollar spent within the state, it is important to identify three different kinds of changes in the final demand for goods and services within the state.

(1) First, a change in final demand can be caused by a present resident of the state altering his/her expenditure pattern even though his/her income remains constant. In such a change, there would be both a positive and a negative impact, the net effect being indeterminate. The resident would be reallocating income away from one set of industries (negative impact) to travel related industries (positive impact). The net impact on the state could be positive, negative, or neutral. This analysis does not consider this possibility.

(2) The second type of change in final demand can occur when a resident of the state spends a portion of an *increase* in his/her income on travel within the state.

(3) The third type of change can result when a resident from another state comes to Arkansas, or an Arkansas resident spends travel dollars within the state rather than out-of-state.

The latter two kinds of changes are the concern of this analysis because they are the only ones where changes in final demand have an unambiguous impact on the state economy. Thus, the change in final demand in this analysis relates the expenditure of a dollar **not previously spent within the state economy.**

Input-Output analysis requires the determination of the fraction of each travel dollar that is spent on the various industries within the state. In Parts II and III the largest spending categories were identified. Table 5 in this part shows the distribution of a dollar of Travel Expenditures among the various affected product classes, e.g., $0.313 to wholesale and retail trade, and $0.69 on Transportation, Hotels, etc. To further refine the analysis, the 0.313 cents spent in the wholesale and retail trade sector (0.182 cents on auto transportation, and 0.131 cents on general and miscellaneous retail) must be broken down further because Input-Output analysis treats the wholesale and retail trade sector as a marginal expense. For example, the purchase of gasoline at a service station is recorded as though the customer actually purchased the fuel from the manufacturer (petroleum refining and related industries) while paying the gasoline station its retail markup (the marginal expense).

The *U.S. Census of Retail Trade* reports the percent of gross sales of various merchandise lines by Standard Industrial Classification (SIC). By choosing those merchandise lines which are most likely to

Table 5

Expenditure of a Travel Dollar

I/O No.	Expenditure		Industry
14	$0.0114		Food and Kindred Product
15	0.0042		Tobacco Manufactures
18	0.0394		Apparel
28	0.0235		Drugs, Cleaning and Toilet Preparations
30	0.1415		Petroleum Refining and Related Products
31	0.0078		Rubber and Miscellaneous Plastic Products
63	0.0094		Miscellaneous Manufacturing
73	0.0033		Eating and Drinking Places
Subtotal		0.2405	Merchandise Sales
68	0.0725		Wholesale and Retail Trade (gross margin)
Subtotal		0.3130	Total Retail Gross Sales
64	0.0640		Transportation and Warehousing
71	0.1500		Hotels; Personal and Repair Services
73	0.3640		Eating and Drinking Places
75	0.1080		Amusements
Subtotal		0.6860	
Total		1.000	

Source: Derived from Arkansas Input/Output Model (See Endnote 1). Input/ Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

be travel related, the 0.313 cents expenditure on retail and wholesale trade was broken down into respective categories which, together with the other major spending categories, are reported in Table 5.

Given the data reported in Table 5, the next step is to quantify the direct and indirect effects which would result from a dollar increase in the state's final demand for goods and services. Table 6 reports this information for three types of impacts:

(1) the impact on gross sales for each additional hundred dollars;
(2) the impact on employment for each additional million dollars; and,
(3) the impact on wages and salaries for each additional thousand dollars of new expenditures.

For example, Table 6 shows that for each additional $100 spent in the manner revealed in Table 5, the gross sales of the food and kindred products industry would

Table 6

Impact of Travel on the Economy of Arkansas

I/O No.	Industry	Gross Sales per Hundred	Employment per Million*	Wages and Salaries per Thousand
1	Livestock and Livestock Products	4.25	0.4449	2.3289
2	Other Agricultural Products	3.34	0.5665	2.6319
3	Forestry and Fishery Products	0.45	0.0256	0.1747
4	Agricultural Forestry and Fishery Service	0.37	0.0865	0.5911
5	Iron and Ferroalloy Ores Mining	0.00	0.0000	0.0000
6	Nonferrous Metal Ores Mining	0.05	0.0059	0.0738
7	Coal Mining	0.04	0.0073	0.1500
8	Crude Petroleum and Natural Gas	6.28	0.6362	8.8242
9	Stone and Clay Mining and Quarrying	0.12	0.0239	0.3016
10	Chemical and Fertilizer Mineral Mining	0.02	0.0027	0.0328
11	New Construction	0.00	0.0000	0.0000
12	Maintenance and Repair Construction	2.24	0.5413	5.8467
13	Ordnance and Accessories	0.01	0.0014	0.0190
14	Food and Kindred Products	15.49	1.9731	17.5240
15	Tobacco Manufactures	0.42	0.0000	0.0000
16	Broad and Narrow Fabrics Yarn and Thread	0.45	0.1273	1.1248
17	Misc. Textile Goods and Floor Coverings	0.15	0.0215	0.2223
18	Apparel	5.21	1.4009	8.7327
19	Miscellaneous Fabricated Textile Products	0.05	0.0303	0.1988
20	Lumber & Wood Products, Except Containers	0.48	0.0875	0.8206
21	Wood Containers	0.02	0.0078	0.0539
22	Household Furniture	0.01	0.0030	0.0238
23	Other Furniture and Fixtures	0.01	0.0019	0.0171
24	Paper and Allied Products and Containers	2.24	0.2453	3.5134
25	Printing and Publishing	1.23	0.2381	2.1552
26	Chemicals and Selected Chemical Products	2.06	0.1391	2.0986
27	Plastics and Synthetic Materials	0.11	0.0099	0.1525
28	Drugs Cleaning and Toilet Preparations	2.76	0.1748	2.6388
29	Paints and Allied Products	0.03	0.0040	0.0476
30	Petroleum Refining and Related Industries	16.43	0.5025	6.6565
31	Rubber and Miscellaneous Plastics Products	1.94	0.2397	2.6295
32	Leather Tanning and Finishing	0.00	0.0000	0.0000
33	Footwear and Other Leather Products	0.03	0.0120	0.0811
34	Glass and Glass Products	0.14	0.0356	0.3751
35	Stone and Clay Products	0.34	0.0474	0.5200
36	Primary Iron Steel Manufacturing	0.10	0.0167	0.2035
37	Primary Nonferrous Metals Manufacturing	0.51	0.0458	0.5858
38	Metal Containers	0.18	0.0263	0.2796
39	Heating, Plumbing, & Fabric Struct Metals	0.17	0.0277	0.2868
40	Screw Machine Products and Stampings	0.22	0.0382	0.3414
41	Other Fabricated Metal Products	0.42	0.0670	0.6928
42	Engines and Turbines	0.00	0.0007	0.0079
43	Farm and Garden Machinery	0.04	0.0083	0.0809
44	Construction and Mining Machinery	0.00	0.0007	0.0085
45	Materials Handling Machinery and Equipment	0.02	0.0031	0.0370

Table 6 (Cont.)

I/O No.	Industry	Gross Sales per Hundred	Employment per Million*	Wages and Salaries per Thousand
46	Metalworking Machinery and Equipment	0.06	0.0159	0.1550
47	Special Industry Machinery and Equipment	0.06	0.0040	0.0504
48	General Industrial Machinery and Equipment	0.09	0.0201	0.2028
49	Miscellaneous Machinery, Except Electric	0.08	0.0191	0.2072
50	Office Computing and Accounting Machines	0.01	0.0016	0.0160
51	Service Industry Machines	0.15	0.0204	0.2154
52	Electric Industrial Equipment & Apparatus	0.13	0.0290	0.2737
53	Household Appliances	0.12	0.0135	0.1473
54	Electric Lighting and Wiring Equipment	0.08	0.0107	0.1016
55	Radio, TV, and Communication Equipment	0.04	0.0119	0.1227
56	Electronic Components and Accessories	0.04	0.0137	0.1401
57	Misc. Electrical Machinery and Supplies	0.01	0.0024	0.0244
58	Motor Vehicles and Equipment	0.06	0.0067	0.0636
59	Aircraft and Parts	0.00	0.0009	0.0086
60	Other Transportation Equipment	0.10	0.0262	0.2564
61	Scientific and Controlling Instruments	0.06	0.0188	0.1546
62	Optical, Ophthalmic & Photographic Equip	0.00	0.0019	0.0160
63	Miscellaneous Manufacturing	1.52	0.3660	2.9144
64	Transportation and Warehousing	9.05	2.8080	33.6783
65	Communications, Except Radio and TV	0.74	0.2006	2.8302
66	Radio and TV Broadcasting	0.32	0.0221	0.2155
67	Electric, Gas, Water and Sanitary Service	3.38	0.1539	1.9870
68	Wholesale and Retail Trade	11.82	5.7116	48.1852
69	Finance and Insurance	2.14	0.2199	2.3875
70	Real Estate and Rental	1.02	0.1045	0.7858
71	Hotels; Personal and Repair Services	15.49	9.4790	47.1231
72	Business Services	1.66	0.8737	7.3419
73	Eating and Drinking Places	37.20	28.7121	105.9840
74	Automobile Repair and Services	0.42	0.0949	0.8310
75	Amusements	11.65	7.0275	35.2778
76	Health, Educational & Social Service, etc	0.24	0.1327	1.0672
77	Federal Government Enterprises	0.27	0.1641	2.4310
78	State and Local Government Enterprises	0.31	0.0832	0.7332
	Imports	23.79	0.0000	0.0000
	Total	190.55	64.2492**	369.0141

Source: Derived from Arkansas Input/Output Model (See Endnotes 1). Input/Output Numbers and Industrial Classifications are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C. Each I/O Number and Industrial Classification is based on a collection of products (by SIC Code).

*Employment multipliers are based on 1977 price levels.

**The total employment multiplier for 1987, after adjusting for price level changes, is 36.8401.

increase by $15.49; for each additional $1 million spent, employment in the eating and drinking places would increase by about 29 jobs; and, for each additional thousand dollars spent, wages and salaries paid in the petroleum refining and related products industry would increase by about $6.66.

The last line in Table 6 shows the sum of all the direct and indirect effects. Thus, for each additional $1 million of **new travel** expenditures, one can expect gross sales in the state to increase by $1.9 million, employment to increase (after adjusting for price level changes) by 37 jobs, and wages and salaries to increase by $369 thousand.

Promoting Tourism/Travel as an Economic Development Policy

Arguments abound on the importance (or lack thereof) of travel (including tourist travel) to the Arkansas economy. The purpose of this paper is not to join in that debate, but to offer some methodologies that will promote understanding of the issues. Input-Output Analysis, which facilitates the measurement of relationships among the various industries in the economic process, *does not* offer an answer to the question, "Should the State allocate tax revenues to the promotion of tourism, or any other industry?" It does offer a means of measuring the impacts of development policy. If impacts can be estimated, they can be compared with costs, and informed decisions can be made. The following is an example of this process as it relates to travel. State government is likened to the board of directors of a corporation; taxpayers are likened to stockholders of the corporation. Assuming that the board acts in the best interests of its stockholders, policy decisions will be made on the basis of the expected benefits versus the expected costs of a policy action. In the following analysis tax revenue flows are treated as a proxy for "benefits"; state expenditures are the "costs".

Tax Revenue Analysis

Although gross sales within the state are estimated to increase by $1.90 for each additional dollar of new travel expenditures, not all of this increase is subject to the state's sales tax. Of the additional dollar spent, only $0.7945 is taxable: $1.00 less $0.2055 on items such as gasoline and transportation – Table 6, I/O Numbers 30 and 64 – that are not subject to the state's sales tax. Of the $0.90 indirect increase in gross sales, it is estimated that $0.0628 is subject to the sales tax: Table 6, I/O numbers 68, 71, 73, and 75. Part of the indirect increase in gross sales would be subject to the sales tax; however, most of the increase would be in intermediate goods that are not subject to the sales tax. The sum of the direct and indirect effects results in $0.8573 in gross sales which can be reasonably assumed to be taxable at the four percent sales tax rate. Thus, for each additional dollar spent by a tourist, the state should expect to receive $0.0343 in additional sales tax revenue. The state can also expect to receive additional tax revenue from the tax levied on the increase in personal income as well as additional sales tax revenue resulting from a worker spending his/her new income on goods and services within the state.

In 1987, the ratio of total personal income to wages and salaries equaled 1.89. Assuming that this continues into the future, the $0.369 increase in wages and salaries resulting from a dollar increase in final demand would lead to an increase in total personal income of roughly $0.697. Historically, the general revenue of the state has been about six percent of the state's total personal income. It follows that the state can reasonably expect to receive, in addition to $0.0343, an added sales tax and income tax revenue of $0.0419. Thus, for each additional dollar change in the final demand relating to travel, the state can expect to receive $0.0762 in additional tax revenue. Or equivalently, for the state to receive an additional dollar in tax revenue, travel expenditures must increase by $13.12.

Promoting Tourism/Travel

Arkansas has implemented a policy to foster travel through an annual advertising and promotion campaign that is financed by certain taxes on hotels, motels, camp grounds, and certain amusements. For example, a $5 million annual campaign, ignoring the special tax, will require 131,175 additional traveling parties (655,875 person-trips) per year to be attracted to the state for such a policy to be cost effective, i.e., for costs to at least equal benefits.[5] This would represent a 4.3% increase above the 1987 volume of total travelers to or through the state. In terms of tourists only, the percentage increase could possibly be as high as 18.7% if one accepts the estimated amount of tourist travel (as opposed to total travel) to be about 3.5 million person-trips per year. The issue of estimating tourist travel is treated elsewhere in this issue of the *Review*.[6]

Conclusions

This paper has considered the direct and indirect impact, through Input/Output analysis, of an additional dollar spent by travelers on the economy of Arkansas. It has been estimated that for each additional million dollars in tourist expenditure, gross sales within the state would increase by $1.9 million, employment would increase by 37 jobs, and payment of wages and salaries would increase by $369 thousand. Based on 1987 estimates by the Arkansas Department of Parks and Tourism of total travel expenditures ($2 Billion), it was estimated that the total travel activity accounts for 1) about $1.4 billion (5.1%) of Arkansas Total Personal Income; and 2) also about 73.7 Thousand (7.3%) of total jobs in the state.[7] It was also estimated that the state could reasonably expect to receive an additional dollar of tax revenue for every $13.12 spent by a tourist. From this it was inferred that a $5 million dollar annual campaign undertaken by the state to promote tourism would require an increase of 655,875 additional visitors per year above 1987 levels. However, the "breakeven" volume of new tourists/travelers to the state economy is probably reduced when account is given to the fact that the cost of promoting travel/tourism is being borne (via the special tax) by many of the industries that will be the direct beneficiaries of the promotional effort.

Finally, the most important points made in this paper are not restricted to the estimates about the travel industry but refer to the methodology used in obtaining the estimates. All industries in the state are linked to one another. An increase (or decrease) in the activity of one will to some degree (great or small) affect all others. Input/Output Analysis describes and measures these linkages, thus it provides a useful tool for formulating economic development policy.

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[1] Dennis Beckmann and Edward Fryar, *Arkansas Agricultural Econometric Model with Input/Output*

Analysis. Research funded by a grant from the Arkansas Board of Higher Education. University of Arkansas, Fayetteville, 1987.

[2] Donald R. Market. "Estimating the Tourists Among The Travelers: A First Approximation," *Arkansas Business and Economic Review*, this issue.

[3] Frank H. Troutman and John H. Opitz. *Economic Impact of Travel and Tourism in Arkansas*. Industrial Research and Extension Center, University of Arkansas, Little Rock, December 1976.

[4] *1987 Arkansas Travel and Tourism Report* and *1988 Arkansas Travel and Tourism Report*, Arkansas Department of Parks and Tourism, Little Rock, March 1988 and March 1989, respectively.

[5] The Arkansas Department of Parks and Tourism, based on its Travel Information Center surveys, reports that the average visitor to the state is a member of a party of three spending from five to seven nights away from home, of which two to three are spent in Arkansas, and that the traveling party will spend almost $500 on the trip, of which slightly over half is spent in the state. See *1987 Arkansas Tourism and Travel Report*. If it is assumed that a typical traveling party spends $300 in the state, then the state can expect to receive an additional tax revenue of $22.87 per traveling party.

[6] Market, "Estimating the Tourists," page 14, this issue, calculates the minimum volume of tourist travel in 1987 ranged from 1.3 million to 3.5 million person-trips.

[7] The Arkansas Department of Parks and Tourism estimate of Travel related jobs in 1987 was 47,000. The 73,700 estimate includes not only payroll employment, but also self-employment, unpaid family workers, and private household workers. It also includes direct employment as well as secondary employment.

The Arkansas Economy Quarter IV, 1989

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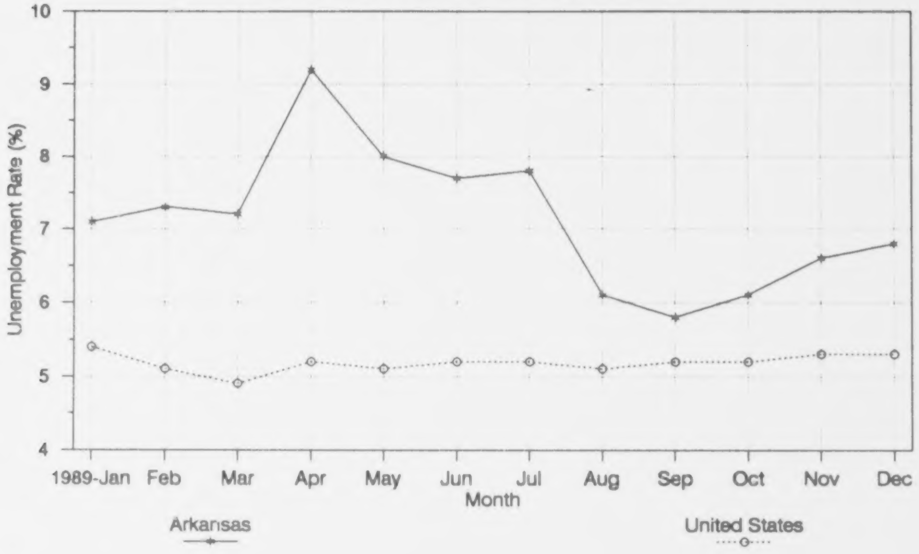
In this section of the previous issue of the *Review* we opined that in spite of a slight second quarter decline in Arkansas Total Personal Income other indicators pointed to a stronger third quarter. Our opinion has been proven wrong. Third quarter 1989 Total Personal Income declined by an inflation adjusted 1.6% from the previous quarter. During the same period, real U.S. Personal Income increased by 0.5%. However, during the first three quarters of 1989, real Total Personal Income in the state was 4.8% above the same period in 1988.

In September of this year Arkansas' unemployment rate reached a decade low of 5.8%. Since then it has moved steadily upward to the December level of 6.8%. However, the number of persons *employed* has increased, although not as fast as the number of job-seekers. Between September and December the labor force increased by 35.2 thousand (3.1%) while the number of employed persons increased by 22.7 thousand (2.1%). As noted in Labor Force Estimates (page 41) wide variations in unemployment rates exist among the state's counties: at one extreme are 16 counties with rates equal to (or less than) the U.S. average; and at the other are 8 counties with rates greater than 10.4%.

The construction industry in the state showed marked improvement in 1989. After three consecutive years of decline in the dollar value of construction contracts, there was a 59.8% increase over 1988. Residential construction contracts increased by 10.5% and nonresidential, by 144.9%. In the fourth quarter of 1989, residential contracts declined by 0.9% while nonresidential increased by 77.7% over the previous quarter.

Other indicators of economic performance were mixed. Value Added by Manufacture increased by 1.1% over 1988; both inbound and outbound tonnages on the Arkansas Navigation System declined during the fourth quarter, but recorded gains for the entire year; and cash receipts declined during the third quarter by 5.5%.

Unemployment Rates
Arkansas and U.S., seasonally adjusted



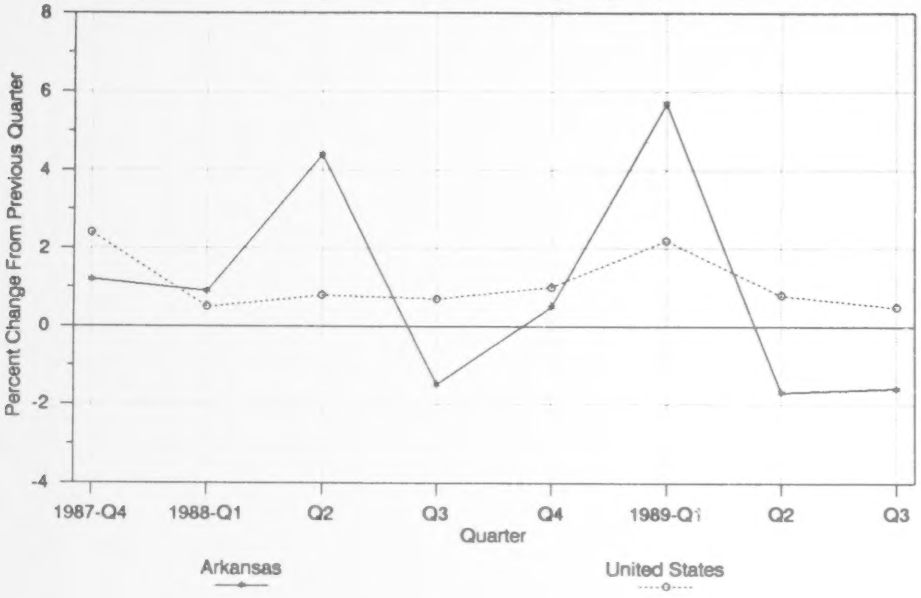
Arkansas Labor Force and Employment
Seasonally adjusted in thousands

Year		Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate	
						Arkansas	U.S.
1981		1,032.8	938.6	64.5	209.7	9.1	7.5
1982		1,024.9	924.1	63.7	195.2	9.8	9.5
1983		1,028.4	924.3	62.6	199.6	10.1	9.5
1984		1,041.0	948.1	61.6	210.2	8.9	7.4
1985		1,051.7	960.7	46.2	210.3	8.7	7.1
1986		1,072.4	978.3	45.5	213.9	8.8	6.9
1987		1,091.5	1,002.4	44.8	219.6	8.1	6.1
1988		1,123.2	1,037.1	44.1	228.5	7.6	5.4
1989		1,162.0	1,078.9	43.4	234.0	7.1	5.3
1989	Jan	1,169.4	1,088.7	43.7	234.3	7.1	5.4
	Feb	1,163.5	1,080.8	43.9	234.1	7.3	5.1
	Mar	1,162.8	1,080.4	43.9	235.5	7.2	4.9
	Apr	1,169.9	1,063.8	43.7	235.2	9.2	5.2
	May	1,164.5	1,071.1	43.5	233.8	8.0	5.1
	Jun	1,154.5	1,065.8	43.4	235.1	7.7	5.2
	Jul	1,170.4	1,080.5	43.2	233.7	7.8	5.2
	Aug	1,164.0	1,092.8	43.2	234.3	6.1	5.1
	Sep	1,140.2	1,071.3	43.2	233.3	5.8	5.2
	Oct	1,155.7	1,082.1	43.1	232.9	6.1	5.2
	Nov	1,153.3	1,075.3	43.0	232.9	6.6	5.3
	Dec	1,175.4	1,094.0	43.1	232.9	6.8	5.3

Source: U.S. data: *Economic Indicators*. Arkansas data: *Current Employment Developments: Arkansas*, Arkansas Employment Security Division.

Changes in Real Personal Income

Arkansas and U.S., quarterly, seasonally adjusted annual rates



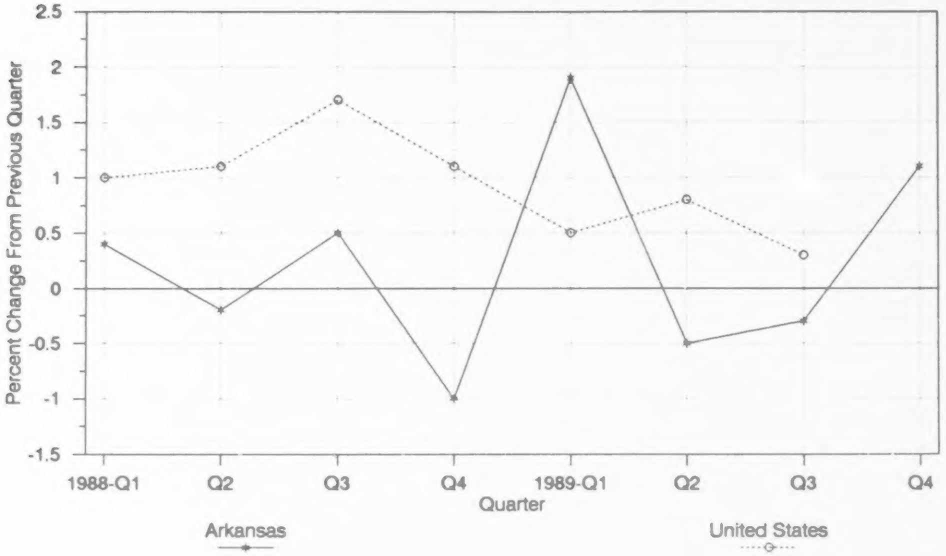
Arkansas Personal Income

Seasonally adjusted annual rates in millions of dollars

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1980		17,097	8.5	11.0	19,950	-0.5	1.8
1981		19,140	11.9	11.6	20,362	2.1	1.8
1982		19,855	3.7	5.9	19,855	-2.5	-0.4
1983		21,158	6.6	6.3	20,364	2.6	2.3
1984		23,309	10.2	9.5	21,643	6.3	5.7
1985		24,838	6.6	7.0	22,397	3.5	3.9
1986		26,035	4.8	6.0	22,858	2.1	3.2
1987		27,275	4.8	7.1	23,218	1.6	3.9
1988		29,263	7.3	7.6	24,124	3.9	4.2
1987	Q4	27,655	1.8	3.0	23,318	1.2	2.4
1988	Q1	28,033	1.4	1.0	23,518	0.9	0.5
	Q2	29,601	5.6	2.0	24,545	4.4	0.8
	Q3	29,468	-0.4	1.8	24,174	-1.5	0.7
	Q4	29,950	1.6	2.1	24,290	0.5	1.0
1989	Q1	31,958	6.7	3.2	25,669	5.7	2.2
	Q2	31,765	-0.6	1.9	25,230	-1.7	0.8
	Q3	31,495	-0.8	1.3	24,819	-1.6	0.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis (Regional Economic Information System).

Changes in U.S.Industrial Production and Arkansas Value Added
Quarterly, seasonally adjusted annual rates

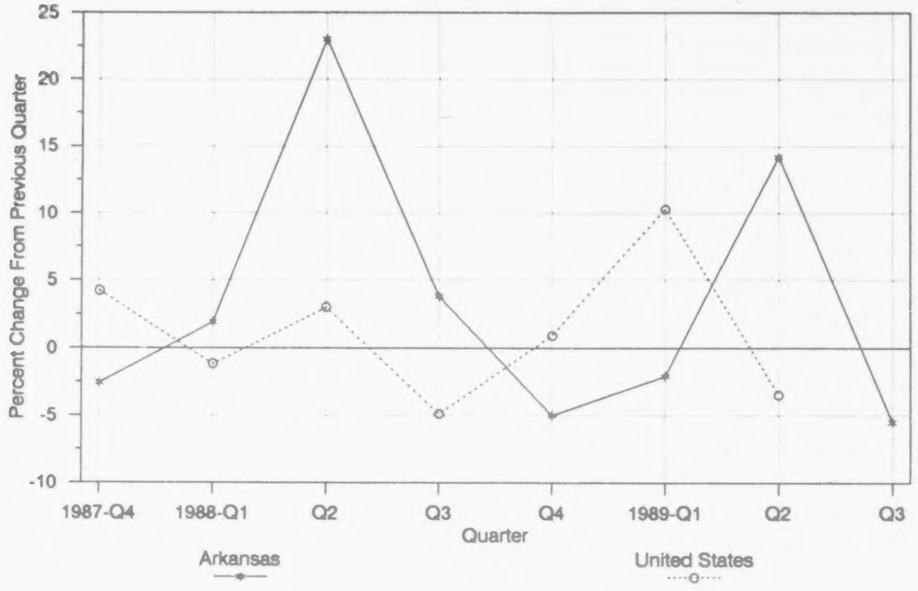


Arkansas Value Added by Manufacture
Seasonally adjusted annual rates in millions of dollars

		In Current $'s		In Constant 1982 $'s		
		Arkansas		Arkansas		U.S.
Year		Amount	% Change	Amount	% Change	% Change
1981		7,436.6	11.8	7,911.3	2.0	2.2
1982		7,594.4	2.1	7,594.4	-4.0	-7.1
1983		8,238.2	8.5	7,929.0	4.4	5.9
1984		9,006.2	9.3	8,362.3	5.5	11.2
1985		9,331.1	3.6	8,414.0	0.6	1.9
1986		9,723.0	4.2	8,536.4	1.5	1.1
1987		10,389.2	6.9	8,844.1	3.6	3.8
1988		10,939.4	5.3	9,018.5	2.0	5.7
1989		11,486.3	5.0	9,116.1	1.1	NA
1988	Q1	10,768.7	0.9	9,034.1	0.4	1.0
	Q2	10,877.8	1.0	9,019.8	-0.2	1.1
	Q3	11,049.1	1.6	9,064.0	0.5	1.7
	Q4	11,062.0	0.1	8,971.6	-1.0	1.1
1989	Q1	11,377.8	2.9	9,138.8	1.9	0.5
	Q2	11,444.6	0.6	9,090.3	-0.5	0.8
	Q3	11,498.0	0.5	9,060.6	-0.3	0.3
	Q4	11,624.8	1.1	9,160.6	1.1	NA

Sources: Arkansas Value Added by Manufacture: BBER Computation. U.S. Industrial Production: "Production and Business Activity," *Economic Indicators*.

Changes in Real Cash Receipts from Farm Marketings
Arkansas and U.S., quarterly, seasonally adjusted annual rates



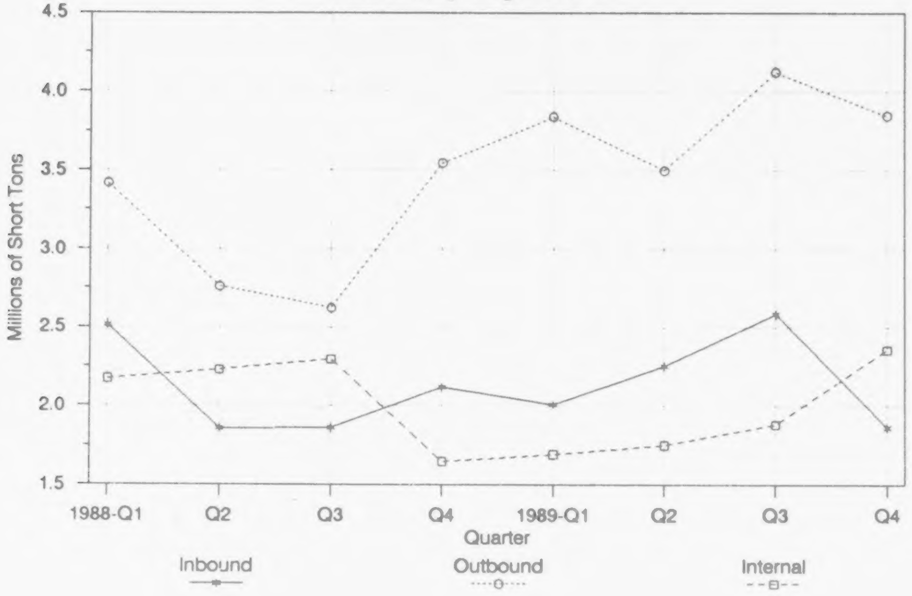
Cash Receipts from Farm Marketings
Seasonally adjusted annual rates in millions of dollars

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1980		3,105.9	1.4	-0.9	3,624.2	-7.0	-9.1
1981		3,391.4	9.2	11.5	3,607.9	-0.4	1.6
1982		3,254.0	-4.1	-1.7	3,254.0	-9.8	-7.6
1983		2,834.9	-12.9	-6.5	2,728.5	-16.1	-10.0
1984		3,475.0	22.6	14.5	3,226.5	18.3	10.4
1985		3,290.0	-5.3	-5.0	2,966.6	-8.1	-7.7
1986		3,034.1	-7.8	-3.6	2,663.8	-10.2	-6.1
1987		3,192.0	5.2	7.1	2,717.3	2.0	3.8
1988		3,939.2	23.4	3.5	3,247.5	19.5	0.2
1987	Q4	3,200.7	-2.0	4.8	2,698.7	-2.6	4.2
1988	Q1	3,279.0	2.4	-0.7	2,750.8	1.9	-1.2
	Q2	4,082.0	24.5	4.2	3,384.8	23.0	3.0
	Q3	4,280.8	4.9	-3.8	3,511.7	3.8	-4.9
	Q4	4,115.2	-3.9	2.1	3,337.5	-5.0	0.9
1989	Q1	4,065.9	-1.2	11.4	3,265.8	-2.1	10.3
	Q2	4,696.1	15.5	-2.5	3,730.0	14.2	-3.5
	Q3	4,474.6	-4.7	NA	3,526.1	-5.5	NA

Sources: U.S. data: "Farm Income," *Economic Indicators*. Arkansas data: "Monthly Cash Receipts," USDA/ERS/NED.

Changes in Waterborne Freight Traffic

Seasonally adjusted



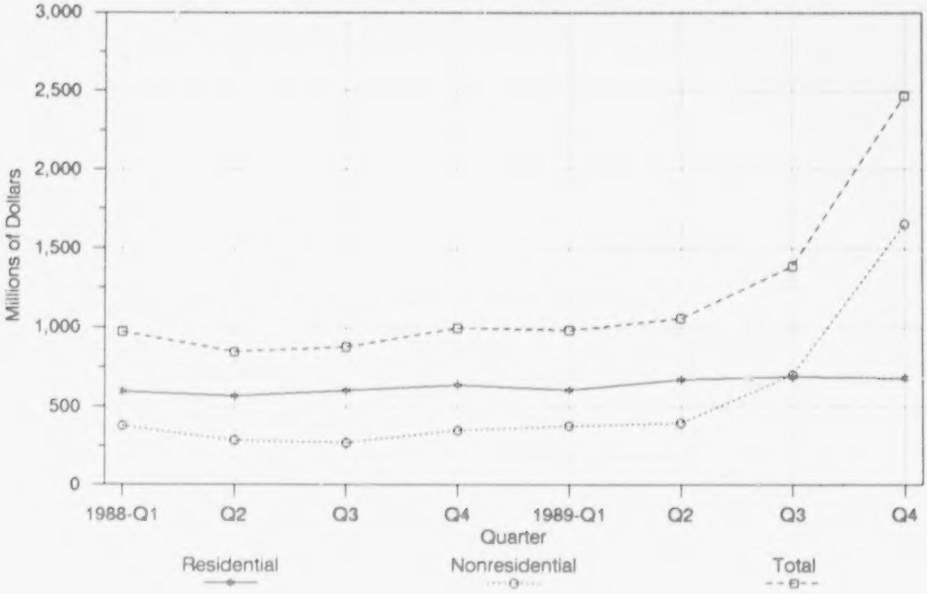
Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System

Seasonally adjusted annual rates in thousands of short tons

Year		Inbound		Outbound		Internal		Total	
		Total	% Change	Total	% Change	Total	% Change	Total	% Change
1981		1,563	-3.2	5,710	22.9	1,774	-27.5	9,449	3.3
1982		1,525	-2.4	4,596	-19.5	1,517	-14.5	8,279	-12.4
1983		1,914	25.5	3,892	-15.3	1,910	26.0	8,005	-3.3
1984		2,126	11.0	4,288	10.2	2,453	28.4	9,486	18.5
1985		2,090	-1.7	3,152	-26.5	2,437	-0.6	8,290	-12.6
1986		2,618	25.3	3,416	8.4	3,101	27.2	9,733	17.4
1987		2,129	-18.7	3,385	-0.9	2,791	-10.0	8,884	-8.7
1988		2,086	-2.1	3,084	-8.9	2,084	-25.3	7,802	-12.2
1989		2,174	4.2	3,827	24.1	1,918	-7.9	8,349	7.0
1988	Q1	2,512	13.9	3,416	-7.5	2,170	-26.8	8,873	-1.2
	Q2	1,854	-26.2	2,757	-19.3	2,225	2.5	7,568	-14.7
	Q3	1,858	0.2	2,619	-5.0	2,293	3.1	7,302	-3.5
	Q4	2,117	13.9	3,545	35.4	1,646	-28.2	7,463	2.2
1989	Q1	2,005	-5.3	3,838	8.3	1,691	2.7	8,390	12.4
	Q2	2,248	12.1	3,498	-8.9	1,748	3.4	8,027	-4.3
	Q3	2,581	14.8	4,122	17.8	1,880	7.5	8,890	10.8
	Q4	1,862	-27.9	3,848	-6.7	2,354	25.2	8,087	-9.0

Source: Corps of Engineers Monthly Report — Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System, New Orleans District.

Arkansas Construction Contracts
Quarterly, seasonally adjusted annual rates



Arkansas Construction Contracts
Seasonally adjusted annual rates in millions of dollars

Year		Residential		Nonresidential		Total	
		Contracts	% Change	Contracts	% Change	Contracts	% Change
1981		632.8	-1.3	300.5	-15.5	935.9	-5.8
1982		648.0	2.4	280.4	-6.7	927.7	-0.9
1983		904.8	39.6	366.7	30.8	1,273.8	37.3
1984		917.5	1.4	466.6	27.2	1,387.8	9.0
1985		764.2	-16.7	455.2	-2.4	1,224.6	-11.8
1986		740.8	-3.1	415.4	-8.7	1,155.2	-5.7
1987		647.2	-12.6	406.3	-2.2	1,051.1	-9.0
1988		601.3	-7.1	320.2	-21.2	922.6	-12.2
1989		664.2	10.5	784.0	144.9	1,474.5	59.8
1988	Q1	596.3	-7.3	377.2	14.2	970.4	-1.0
	Q2	566.1	-5.1	286.3	-24.1	845.2	-12.9
	Q3	602.9	6.5	268.9	-6.1	877.3	3.8
	Q4	640.0	6.2	348.3	29.5	997.7	13.7
1989	Q1	608.0	-5.0	379.5	9.0	983.9	-1.4
	Q2	673.9	10.8	397.4	4.7	1059.9	7.7
	Q3	690.4	2.5	703.4	77.0	1,388.0	31.0
	Q4	684.5	-0.9	1,655.7	135.4	2,466.4	77.7

Source: *F. W. DODGE Construction Potentials*, McGraw-Hill.

ARKANSAS LABOR FORCE ESTIMATES
December 1989, Not Seasonally Adjusted

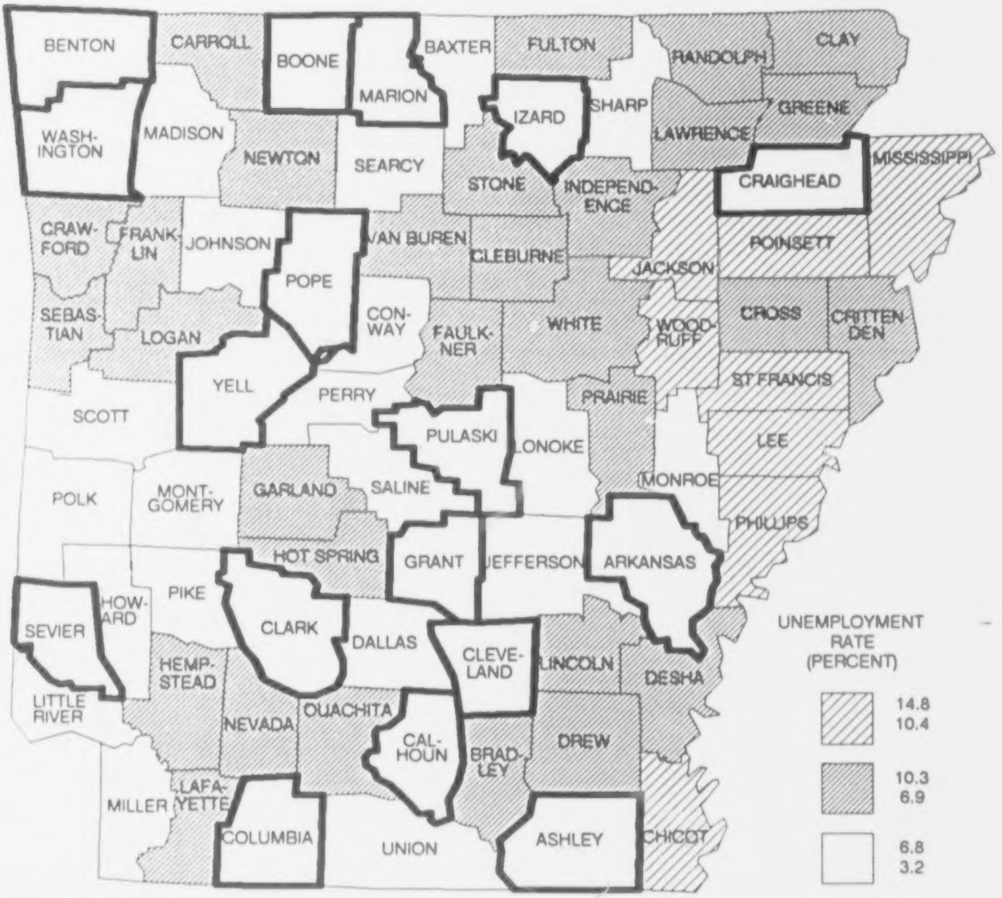
Area	Civilian Labor Force	Total Employment	Unemployment Rate
UNITED STATES	123,998,000	117,698,000	5.1
STATE OF ARKANSAS	1,163,500	1,088,900	6.4
Fayetteville-Springdale MSA	64,875	62,550	3.6
Fort Smith MSA	93,375	84,825	9.2
Little Rock-North Little Rock MSA	281,000	266,625	5.1
Pine Bluff MSA	38,700	36,450	5.8

County	Civilian Labor Force	Total Employment	Unemployment Rate	County	Civilian Labor Force	Total Employment	Unemployment Rate
Arkansas	10,525	10,075	4.3	Lee	4,225	3,600	14.8
Ashley	11,175	10,650	4.7	Lincoln	4,425	4,050	8.5
Baxter	11,775	11,050	6.2	Little River	5,825	5,525	5.2
Benton	55,675	53,875	3.2	Logan	9,700	8,850	8.8
Boone	15,900	15,200	4.4	Lonoke	18,800	17,700	5.9
Bradley	4,750	4,350	8.4	Madison	5,175	4,825	6.8
Calhoun	5,600	5,375	4.0	Marion	6,600	6,300	4.5
Carroll	10,575	9,675	8.5	Miller	18,775	17,675	5.9
Chicot	5,725	5,050	11.8	Mississippi	21,875	19,250	12.0
Clark	9,725	9,225	5.1	Monroe	5,050	4,725	6.4
Clay	9,025	8,375	7.2	Montgomery	2,625	2,450	6.7
Cleburne	9,250	8,575	7.3	Nevada	4,200	3,775	10.1
Cleveland	4,450	4,250	4.5	Newton	3,125	2,875	8.0
Columbia	13,325	12,675	4.9	Ouachita	14,175	12,925	8.8
Conway	8,275	7,750	6.3	Perry	4,775	4,450	6.8
Craighead	39,075	37,375	4.4	Phillips	9,325	8,325	10.7
Crawford	21,525	19,575	9.1	Pike	4,450	4,200	5.6
Crittenden	24,600	22,775	7.4	Poinsett	10,800	9,575	11.3
Cross	8,150	7,450	8.6	Polk	6,925	6,550	5.4
Dallas	4,375	4,100	6.3	Pope	25,475	24,375	4.3
Desha	6,975	6,300	9.7	Prairie	4,775	4,400	7.9
Drew	8,300	7,625	8.1	Pulaski	200,675	191,800	4.4
Faulkner	29,375	26,875	8.5	Randolph	7,275	6,650	8.6
Franklin	6,350	5,825	8.3	St. Francis	9,625	8,425	12.5
Fulton	3,900	3,600	7.7	Saline	32,150	30,250	5.9
Garland	30,750	28,350	7.8	Scott	5,725	5,425	5.2
Grant	7,150	6,850	4.2	Searcy	3,300	3,100	6.1
Greene	15,275	14,225	6.9	Sebastian	55,100	50,150	9.0
Hempstead	10,350	9,350	9.7	Sevier	6,900	6,650	3.6
Hot Spring	10,975	9,850	10.3	Sharp	6,600	6,175	6.4
Howard	6,500	6,075	6.5	Stone	4,200	3,825	8.9
Independence	16,800	15,575	7.3	Union	22,000	20,675	6.0
Izard	5,500	5,225	5.0	Van Buren	6,425	5,925	7.8
Jackson	8,750	7,650	12.6	Washington	64,875	62,550	3.6
Jefferson	38,700	36,450	5.8	White	26,150	23,750	9.2
Johnson	7,625	7,125	6.6	Woodruff	3,825	3,300	13.7
Lafayette	3,125	2,875	8.0	Yell	9,125	8,750	4.1
Lawrence	8,575	7,850	8.5				

Source: Labor Market Information for Arkansas Counties, Arkansas Employment Security Division, January 1990.

Labor Force Estimates
December 1989

In December, Arkansas' Civilian Labor Force rose 3,000 to 1,163,500. Total Employment fell by 900 to 1,088,900. Unemployment rose 3,900 to 74,600. Of the 75 counties, Benton had the lowest unemployment rate, 3.2 percent, and Lee, the highest, 14.8 percent, 32 counties were equal to or below the state's 6.4 percent rate while another 10 exceeded a 10 percent rate. Of the MSAs, Fayetteville-Springdale had the lowest unemployment rate, 3.6 percent, and Fort Smith, the highest, 9.2 percent. The rates for the Little Rock-North Little Rock and Pine Bluff MSAs were 5.1 and 5.8 percent, respectively.


BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASH-INGTON
MADISON
NEWTON
SEARCY
IZARD
SHARP
LAWRENCE
GREENE
MISSISSIPPI
STONE
INDEPEND-ENCE
CRAIGHEAD
CRAW-FORD
FRANK-LIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBAS-TIAN
LOGAN
CON-WAY
FAULK-NER
WHITE
WOOD-RUFF
CROSS
CRITTEN-DEN
YELL
PERRY
PRAIRIE
ST FRANCIS
SCOTT
PULASKI
LONOKE
LEE
POLK
MONT-GOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
HOW-ARD
PIKE
CLARK
DALLAS
CLEVE-LAND
LINCOLN
DESHA
LITTLE RIVER
HEMP-STEAD
NEVADA
OUACHITA
CAL-HOUN
BRAD-LEY
DREW
MILLER
LAFA-YETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE (PERCENT)
14.8 10.4
10.3 6.9
6.8 3.2

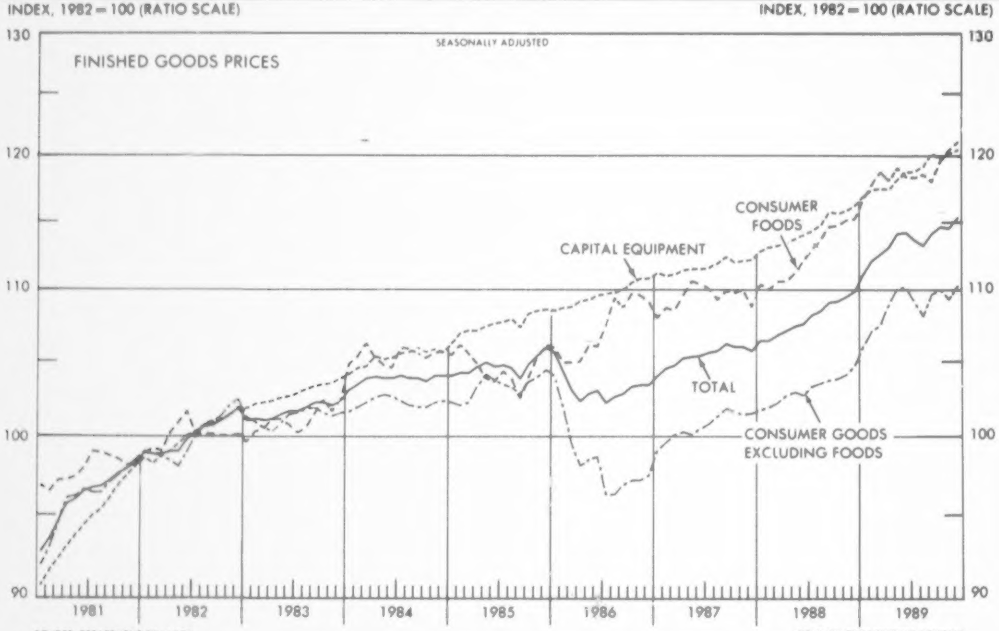
▬ Boundary lines of counties having an unemployment rate less than or equal to the national average of 5.1 percent.

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

PRICES

PRODUCER PRICES

In December, the producer price index for all finished goods rose 0.7 percent. Prices of finished consumer foods rose 0.5 percent, and prices of other finished consumer goods rose 0.9 percent. Capital equipment prices rose 0.2 percent.



SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982 = 100; monthly data seasonally adjusted]

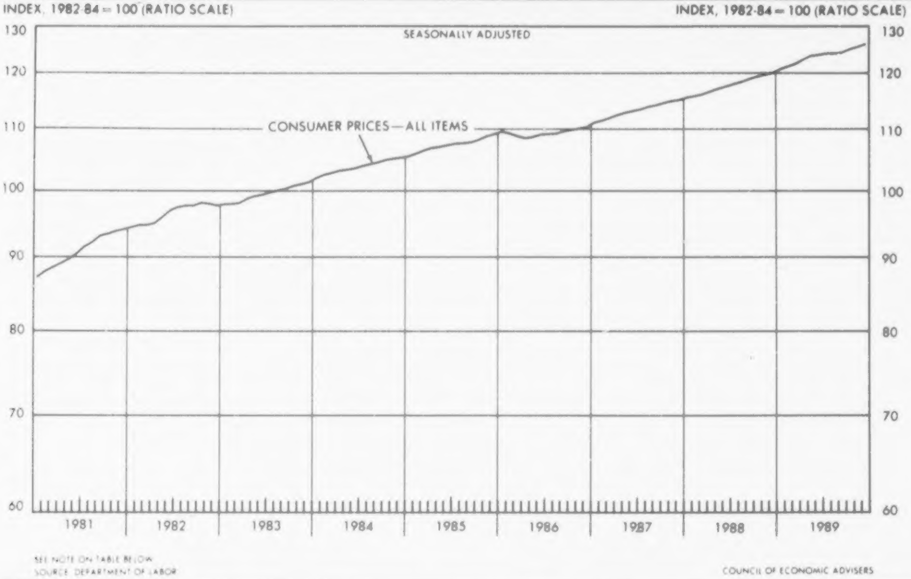
Period	Finished goods								Intermediate materials			Crude materials		
	Total finished goods	Consumer foods	Finished goods excluding consumer foods					Total finished consumer goods	Total	Foods and feeds [1]	Other	Total	Foodstuffs and feedstuffs	Other
			Total	Consumer goods			Capital equipment							
				Total	Durable	Nondurable								
1980	88.0	92.4	86.7	87.1	91.0	85.1	85.8	88.6	90.3	105.5	89.4	95.3	104.6	84.6
1981	96.1	97.8	95.6	96.1	96.4	95.8	94.6	96.6	98.6	104.6	98.2	103.0	103.9	101.8
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	101.6	101.0	101.8	101.2	102.8	100.5	102.8	101.3	100.6	103.6	100.5	101.3	101.8	100.7
1984	103.7	105.4	103.2	102.2	104.5	101.1	105.2	103.3	103.1	105.7	103.0	103.5	104.7	102.2
1985	104.7	104.6	104.6	103.3	106.5	101.7	107.5	103.8	102.7	97.3	103.0	95.8	94.8	96.9
1986	103.2	107.3	101.9	98.5	108.9	93.3	109.7	101.4	99.1	96.2	99.3	87.7	93.2	81.6
1987	105.4	109.5	104.0	100.7	111.5	94.9	111.7	103.6	101.5	99.2	101.7	93.7	96.2	87.9
1988	108.0	112.6	106.5	103.1	113.8	97.3	114.3	106.2	107.1	109.5	106.9	96.0	106.1	85.5
1989 p	113.5	118.7	111.8	108.9	117.6	103.8	118.7	112.1	112.0	113.8	111.9	103.0	111.1	93.4
1988: Dec	109.9	115.2	108.2	104.7	115.4	98.9	116.2	108.2	109.5	112.3	109.4	97.8	110.8	85.6
1989: Jan	111.1	116.7	109.3	106.0	116.3	100.4	116.9	109.5	110.8	115.2	110.5	101.8	113.3	90.2
Feb	112.1	117.8	110.1	107.1	116.9	101.6	117.4	110.6	111.3	114.8	111.1	101.5	111.7	90.7
Mar	112.6	118.8	110.5	107.5	117.0	102.2	117.5	111.2	111.9	116.7	111.7	103.7	115.2	92.1
Apr	113.1	118.1	111.4	109.0	116.3	104.4	117.4	112.0	112.5	114.9	112.4	104.5	112.1	95.1
May	114.1	119.1	112.5	110.1	117.2	105.7	118.2	113.1	112.7	113.6	112.6	104.9	112.1	95.8
June	114.2	118.4	112.7	110.2	117.7	105.6	118.8	112.9	112.4	112.0	112.5	103.2	109.7	94.7
July	113.6	118.3	112.1	109.2	117.3	104.4	118.8	112.2	112.2	113.8	112.1	103.4	108.7	95.5
Aug r	113.2	118.6	111.4	108.1	117.7	102.7	119.2	111.5	111.8	113.4	111.7	101.4	110.5	91.2
Sept	114.1	118.0	112.9	109.7	119.1	104.4	120.2	112.5	112.3	113.6	112.2	102.3	109.1	93.5
Oct	114.6	119.6	112.9	110.0	118.7	105.0	119.8	113.2	112.3	112.7	112.3	102.3	108.4	94.0
Nov	114.5	120.5	112.6	109.3	118.5	104.0	120.2	113.0	112.2	113.2	112.2	102.7	110.2	93.4
Dec	115.3	121.1	113.4	110.3	119.1	105.2	120.5	113.9	112.1	112.4	112.1	104.5	113.5	94.3

[1] Intermediate materials for food manufacturing and feeds.

Source: Department of Labor, Bureau of Labor Statistics.

CONSUMER PRICES—ALL URBAN CONSUMERS

In December, the consumer price index for all urban consumers rose 0.4 percent, seasonally adjusted (0.2 percent not seasonally adjusted). The index was 4.6 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982-84 = 100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1]		Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, shelter, and energy
				Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
	Not seasonally adjusted (NSA)	Seasonally adjusted			Total	Renters' costs (Dec 1982 = 100)	Homeowners' costs (Dec 1982 = 100)	Maintenance and repairs (NSA)								
Rel. imp. [3]	100.0	....	16.2	42.3	27.8	7.9	19.7	0.2	7.6	6.4	17.2	4.3	3.1	6.0	7.3	48.7
1980	82.4	....	86.8	81.1	81.0	....	....	82.4	75.4	90.9	83.1	88.4	97.4	74.9	86.0	80.6
1981	90.9	....	93.6	90.4	90.5	....	....	90.7	86.4	95.3	93.2	93.7	108.5	82.9	97.7	88.3
1982	96.5	....	97.4	96.9	96.9	....	....	96.4	94.9	97.8	97.0	97.4	102.8	92.5	99.2	95.1
1983	99.6	....	99.4	99.5	99.1	103.0	102.5	99.9	100.2	100.2	99.3	99.9	99.4	100.6	99.9	100.0
1984	103.9	....	103.2	103.6	104.0	108.6	107.3	103.7	104.8	102.1	103.7	102.8	97.9	106.8	100.9	105.0
1985	107.6	....	105.6	107.7	109.8	115.4	113.1	106.5	106.5	105.0	106.4	106.1	98.7	113.5	101.6	109.0
1986	109.6	....	109.0	110.9	115.8	121.9	119.4	107.9	104.1	105.9	102.3	110.6	77.1	122.0	88.2	112.7
1987	113.6	....	113.5	114.2	121.3	128.1	124.8	111.8	103.0	110.6	105.4	114.6	80.2	130.1	88.6	117.0
1988	118.3	....	118.2	118.5	127.1	133.6	131.1	114.7	104.4	115.4	108.7	116.9	80.9	138.6	89.3	121.9
1989	124.0	....	125.1	123.0	132.8	138.9	137.3	118.0	107.8	118.6	114.1	119.2	88.5	149.3	94.3	127.3
1988:																
Dec	120.5	120.7	121.2	120.6	129.4	134.9	133.9	115.8	106.3	117.7	110.4	118.1	79.7	142.9	89.2	124.6
1989:																
Jan	121.1	121.4	122.1	120.9	129.7	135.2	134.2	116.1	106.9	117.7	111.2	118.9	80.5	144.0	89.9	125.4
Feb	121.6	121.9	122.6	121.3	130.3	136.4	134.7	117.1	106.7	117.5	111.9	119.3	81.8	145.2	90.4	125.8
Mar	122.3	122.5	123.6	121.7	131.1	138.2	135.1	117.1	106.9	119.1	112.6	119.7	83.6	145.9	91.4	126.3
Apr	123.1	123.3	124.2	121.8	131.2	137.3	135.6	117.3	107.4	119.4	115.0	119.8	93.0	146.6	96.1	126.6
May	123.8	124.0	125.0	122.3	131.8	137.3	136.5	117.4	107.6	120.4	116.1	119.6	96.6	147.6	97.6	127.2
June	124.1	124.2	125.3	122.6	132.3	138.1	136.9	118.3	107.1	119.1	115.9	119.3	95.4	148.7	96.6	127.4
July	124.4	124.5	125.7	123.3	133.2	140.2	137.5	118.4	107.6	118.1	115.2	118.8	93.3	149.8	95.9	127.6
Aug	124.6	124.5	125.9	123.5	133.5	139.6	138.1	118.5	107.5	116.3	114.3	118.5	89.5	150.8	94.0	127.7
Sept	125.0	124.7	126.2	123.6	133.7	138.5	138.8	118.6	107.6	118.3	113.7	118.0	87.6	152.0	93.2	128.2
Oct	125.6	125.3	126.7	124.1	134.4	139.3	139.4	118.6	107.7	119.5	114.5	118.7	88.6	153.0	93.8	128.8
Nov	125.9	125.8	127.4	124.7	135.0	140.1	140.1	119.3	108.7	119.6	114.7	119.6	86.7	154.2	93.7	129.3
Dec	126.1	126.3	128.0	125.3	135.7	141.0	140.7	119.5	109.7	118.8	114.8	120.8	85.1	155.0	93.7	129.7

[1] Includes items not shown separately.

[2] Household fuels—gas (piped), electricity, fuel oil, etc.—and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1988.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Data beginning 1987 and 1988 calculated on a revised basis.

Source: Department of Labor, Bureau of Labor Statistics.

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Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

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Arkansas Usury Law: Synthesis or Stalemate?*

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> "The most foolish – the best term we can apply – enactment of the convention is in section 13 of article 19 in regard to interest. Attempts to regulate interest have invariably failed, for the reason that money, like everything else, will bring its market price – no more, no less – whatever restrictions there may be."
>
> *Arkansas Gazette*, October 6, 1874

Introduction

On November 2, 1982, Arkansas voters approved a constitutional amendment ostensibly designed to remove one of the nation's oldest and most restrictive usury statutes.[1] Passage of Amendment 60 was intended to end a regulatory battle which had raged in cycles for over a hundred years, but it did not. Subsequent court interpretations diluted the effectiveness of the amendment, and yet another usury proposal will be on the Arkansas ballot in the 1990 general election.[2] The purpose of this paper is to explain why a new vote is required and to present a historical analysis of key regulatory and market developments before and after the passage of Amendment 60. Edward J. Kane's concept of a regulatory dialectic, a "struggle model" which pits regulators against the managers of financial institutions whenever political and economic forces come into opposition, is the basis for analysis.[3]

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*We would like to express appreciation to Ben McNew, Department of Finance at University of Central Arkansas, to our University of Arkansas at Little Rock associates, Charles Bolton, Department of History, Cal Ledbetter, Jr., Department of Political Science, and Walter Nunn, Office of International Programs, and to an anonymous *Arkansas Business and Economic Review* referee for their helpful comments on earlier drafts.

Thesis: The Arkansas Constitution of 1874

The U.S. Civil War was partially financed in the North by the printing of inconvertible paper money, popularly called "greenbacks." The U.S. dollar remained inconvertible into gold from 1862 to 1879, with no fixed parity between it and the British pound sterling, then the reserve currency of the world. Because exchange rates between the U.S. dollar and foreign currencies floated freely, the "greenback period" is unusual in the history of monetary economics.[4] For southern states under Reconstruction, it was no mere economic experiment; it coincided with the depression of the 1870s, "the longest cyclical contraction in American history."[5] Eastern bankers and Republicans were blamed for this depression. Many Democrats also adopted the view that the Treasury's policy of moving toward resumption of gold convertibility, which was generally supported by Republicans, was "a bankers' conspiracy to contract the money supply."[6]

At the start of Reconstruction, Republican leaders in the South were obsessed with the issue of economic development. "With the aid of the state, they believed, the backward South could be transformed into a society of booming factories, bustling towns, a diversified agriculture freed from the plantations's dominance, and abundant employment opportunities for black and white alike."[7] Railroad development, then high technology, became a panacea to back up this belief. Republicans offered state subsidies and property tax exemptions to railroads and gave state guarantees for railroad bonds.[8] Despite falling property values, state and local taxes were steadily increased to support the vast increase in debt which resulted. As a stimulus for economic recovery, railroad development proved to be a pipe dream. When not rendered worthless by outright political fraud, southern railroad bonds were deeply discounted in the market.[9] Bank speculation in the bonds, combined with inelastic national bank notes and a weak monetary policy, led to the first of many post-Civil War banking panics (1873) and to a national economic depression.[10]

The timing of the 1873 banking panic was significant in Arkansas because it compounded an already volatile political situation and fueled further allegations of corruption and mismanagement by the extant Republican Reconstruction government. Fraudulent public bond issues promoted by Republicans had put state finances in a precarious position.[11] Few people native to the state viewed the debacle in terms of cyclical economics; it was seen as a consequence of political opportunism. At the start of Congressional Reconstruction with the state under military rule and ex-Confederates denied suffrage, Republicans had forced through the Arkansas Constitution of 1868. The broad powers afforded to the Governor under this new constitution permitted Republicans, most of whom were viewed as outsiders, to take control of state and local government. The 1868 Constitution also contained an obscure but powerful article that freed them from the (potential) onus of interest rate control.[12] It provided that:

> No law limiting the rate of interest for which individuals may contract in this State, shall ever be passed.[13]

After the 1868 Constitution was enacted, interest rates increased dramatically.[14] Evidence for the purported rationale advanced by Republicans for the elimination of the usury law—that it would aid economic development by encouraging outside capital to flow into the state—never materialized.[15] The principal beneficiaries of the new constitution were the legislators who drafted it.

To ex-Confederates, the Arkansas Constitution of 1868 ultimately became "a symbol of Radical Reconstruction, carpetbaggers, and scalawags."[16] A constitutional amendment in 1873 which restored voting privileges to ex-Confederates gave them an opportunity for political reprisal. It came when Democrats won overwhelming voter support for the Arkansas Constitutional Convention of 1874. The convention delegates quickly retaliated against Republican rule and adopted a new constitution. It has been characterized by historians as a rigid, backward-looking document, one designed primarily to address the social ills and political failures of Reconstruction.[17] The delegates also dealt as directly as possible with banks, bond promoters, and money lenders. Usury in Arkansas was redefined:

> All contracts for a greater rate of interest than ten percent shall be void, as to principal and interest, and the General Assembly shall prohibit the same by law; but when no rate of interest is agreed upon, the rate shall be six per cent per annum.[18]

Raw politics aside, no obvious economic explanation exists for the 1874 usury law. As part of a fixed constitution designed to be difficult if not impossible to change, the law was not only inflexible as to rate but provided an unprecedented penalty for violation—loss of interest and principal. More surprising is the *ex post* knowledge that although Article 19, Section 13 would ultimately become the most contested item of the 1874 Constitution, little if any debate about it occurred during the convention. It simply was not controversial in Arkansas.[19] Eastern reaction, however, was blunt:

> The convention could not rise to the height of getting rid altogether of usury laws, and indeed, for a western state, exhibited a small degree of liberality, since though ten per cent may be taken by express contract, an agreement for anything above that sum forfeits not merely interest, but principal also—a piece of barbarism quite unworthy an improved constitution formed on modern principles.[20]

It might be argued that the 1874 usury statute simply affirmed traditional secular and religious views towards the lending of money. Religious belief, however, played a secondary role to the economic realities of southern reconstruction. Capital shortage and severe wage and price contraction forced hardship on most states outside of the East and devastated the South. Increased national production after the Civil War was accompanied by an unprecedented drop in wholesale prices with the result that:

> While the steady increase in output indicated that low prices were profitable to many farmers who could obtain cheap land, hardship for some was inevitable. Farms that were marginal in 1865 became submarginal as time went on. Those with heavy debt loads were hard hit; the liquidation wringer they were

> forced through added to the depression of the seventies.[21]

The economy of Arkansas in the 1870s was based almost entirely on agriculture. The delegates to the Arkansas Constitutional Convention were predominately farmers or lawyers, and typically both, easily characterized as some of the most substantial men in the state.[22] They were not unsophisticated in business affairs or politically hostile to bankers. That they were keenly aware of the economic plight of the state is evident in the agenda for the convention. In drawing the list of convention issues to be considered:

> Foremost in the minds of the delegates was the dangerous financial condition of the state at the time. Arkansas was faced with a heavy debt, deteriorating currency, poor credit, and the fear of going into bankruptcy.[23]

The convention delegates might have equated restoration of confidence in the state's financial system with rate regulation, historically not an uncommon regulatory position. When the convention opened, the two major state-sponsored lending institutions, The Bank of Arkansas and The Real Estate Bank, were essentially defunct. Only two adequately capitalized private commercial banks were in operation in Little Rock, perhaps as few as five private banks statewide.[24] The Little Rock branch of the Freedmen's Savings and Trust Company, organized in 1870, had attracted numerous depositors but was closed in 1874 because of fraud and mismanagement.[25] There was no great common demand for banking services. Local bankers, even if they had reservations about the usury provisions in the 1874 Constitution, were in no position to challenge the convention. It is likely, therefore, that the strong usury provisions in the 1874 Constitution were uncontroversial simply because the delegates could not foresee a situation where the ten percent rate limitation would ever pose a problem for "legitimate" local lenders. They knew that the major source of capital for near-term development would have to come from outside the state, namely the East. It is reasonable to infer that the provisions in the 1874 Constitution were an attempt to ensure local control of that source.

Additional evidence exists that the call for strong usury legislation in the 1874 convention had, as its unannounced intention, return of local banking affairs to local bankers and businessmen. Quoting Penick, from his 1954 analysis of the Arkansas usury law:

> When the Constitutional Convention of 1874 met in Arkansas to draft a new Constitution, the country was just recovering from the depression of 1873. Those men, who were the fathers of the 1874 Constitution of Arkansas (which is the Constitution in effect today), were a more representative group than had been the drafters of the 1868 Constitution. Those who had been disenfranchised for participating in the Civil War on the side of the Confederacy were by 1874 restored to their rightful powers.[26]

In summary, the Arkansas Constitution of 1868 specifically prohibited any state imposed limitations on the interest rates charged in legal contracts. After this change in law, interest rates soared to levels which were thought confiscatory. The financial position of the state, already in question because of government corruption, was then brought to near bankruptcy by the banking panic of 1873 and a national depression. Given a political opportunity ripe for change, the delegates to the Constitutional Convention of 1874 reacted by drafting a radically new constitution. It was designed not only as a general assault on state government power but, via an obscure but very strong usury law, as a means to drive eastern money lenders out of the state. In keeping with Kane's theory of bank regulation, it was a law with an indirect motive which had unforeseen and unintended consequences.

Antithesis Part 1: Early Evidence of Regulatory Avoidance

After the Convention of 1874, as Arkansas slowly started to rebuild, the new usury law surfaced as a partial, but not binding, constraint on banking activity. Few useful bank financial reports exist from this period, but the legal record is complete, and we can link court activity involving usury to overall banking conditions in the state. Penick's legal analysis shows that court cases involving usury began to appear regularly starting in the 1880s.[27] These cases predictably involved claims of evasion – the most successful of many such techniques being: (a) disguised mathematical methods for charging higher effective annual interest, (b) separating fees and other charges from interest calculations and (c) most important, at least for captive finance companies making installment consumer loans, charging differential prices for items bought on credit as compared with cash.

For about 75 years, when in question and put to any serious legal test, these "loopholes" were sustained by the Arkansas Supreme Court. Either that, or the usury law did not interfere with normal business affairs because the ten percent limit was not binding in the market. In the boom economy of the 1920s, for example, finance companies, captive to national vendors (primarily automobile companies) moved aggressively into Arkansas and were able to operate competitively using the cash vs. credit price differential. The Supreme Court routinely gave favorable interpretations about how effective rates, once advertised, might actually be charged.[28] Later in the 1930s, usury was one of the last concerns of any financial institution, given the national economic depression, some nine thousand bank failures, and finally, the imposition of deposit rate controls (Regulation Q) by the Banking Act of 1933. Problems in Arkansas for finance companies, and to a lesser extent banks, did not emerge until the late 1940s. Then in a long series of usury cases, the courts began to attack the various "loopholes." Driven by a rise in market rates and certain of an inhospitable court trend, finance companies exerted political pressure in 1952 for a constitutional amendment which would eliminate Article 19, Section 13 of the 1874 Constitution and allow the state legislature to set rate maximums. In the minds of the public, this proposal would only put the finance companies back on "Easy Street."[29] Thus the effort failed miserably, along with similar attempts at legislative change.

In the middle 1950s, unable to work within the law or promote a new regulatory synthesis, finance companies – artificially priced out of their only market, consumer loans – left the state.[30] Retailers then became major suppliers of consumer credit. Banks, still operating in a protected Regulation Q environment and having more diversified investment opportunities, still were not seriously constrained. There was apparently "room for the legitimate lender to make a reasonable profit and still remain within the usury provisions."[31]

Antithesis Part 2: Regulatory Struggle (1974-1982)

In the late 1970s the federal regulatory framework for financial institutions established in the 1930s collapsed; it became incompatible with technological advances in banking and competitive conditions in money and capital markets. This new market reality would later be partially recognized, after the fact, by federal legislation in 1980 and 1982.[32] In Arkansas, the need for changes in the federal regulatory framework was compounded by a growing problem with the local usury law. Cornered, the local financial community again pressed in earnest to amend the state constitution. In terms of Kane's dialectic model, the sequence of market events and regulatory changes before and after voters passed Amendment 60 in 1982 reveals a classic struggle between regulators and the regulated. A chronology is shown in the Appendix, Exhibit 1.[33] Appendix, Table 1 supplements the chronology; it presents annual data on key money market rates for 1974 through 1988 and includes, as a proxy measure of the intensity of the regulatory struggle, a year-by-year count of related newspaper reports.

Usury started to become a serious problem in Arkansas in early 1974 when national short-term money market rates exceeded ten percent. Consumer loans in the state remained at the ten percent limit, which was below the average prime rate for the year, and federally preempted loans (see Exhibit 1: October 29, 1974) were limited on average to 203 basis points over the prime rate. A similar situation existed in nearby Tennessee, which also had a binding constitutionally imposed usury limit. In an ironic twist of history – given the origins of southern usury law – legislative relief was first sought at the federal level. Well-financed lobbying efforts in Washington proved partially successful and resulted in the "Brock Act," legislation which re-established a precedent for federal preemption of state law. Federal preemption then provided essentially the only escape for Arkansas institutions until the passage of Amendment 60 in 1982. The federal measures, however, were intended only to provide temporary, stopgap relief until state law, if voters so decided, could be changed. Tennessee amended its constitution in 1979. Constitutional amendments in Arkansas failed in the polls in 1974 and 1980.

In 1974, lobbying efforts for Amendment 57 attracted much press attention. The issue was adequately explained and debated, but the proposal was soundly defeated. The public debate which was played out revealed many of the same hostilities which had surfaced in 1952. The amendment was defeated because, once again, its proponents attempted to refer the matter to the state legislature. Voters were again in no mood to trust the Arkansas legislature with interest rate control.

The Brock Act expired in July, 1977, which meant that the ten-percent lending limit applied uniformly in Arkansas. Market interest rates once again started to rise. This time around, the movement was dramatic: the average rate on federal funds more than doubled between 1976 and 1979 (when Amendment 60 was first introduced in the General Assembly) and rate volatility (as measured by the standard deviation in monthly average rates) was over five times higher. Newspaper coverage of interest and usury events began to increase in 1978 and reached an all-time high in 1979 (see Table 1).

The intense battle over usury which resurfaced in 1979 was no surprise. It happened not only because usury became binding in Arkansas, but also because commercial banks and thrifts faced massive disintermediation (Exhibit 1, June 1979). As money market mutual funds became readily available to the general public, deposits were drained from banks and thrifts, which – still constrained by Regulation Q – could not pay market rates. Arkansas bankers found themselves sandwiched between Regulation Q and the state usury law. They lobbied heavily in 1980 for another constitutional amendment and were successful in getting two new proposals on the November ballot. One was the result of a convention held in 1979 to propose a new constitution for the state. The other proposal (Amendment 60) resulted from a massive, and expensive, signature drive financed by the banking and business community. Both proposals would have permitted the legislature to set maximum interest rates.

On April 1, 1980, the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980 formally went into effect. The DIDMCA made the eventual demise of Regulation Q official. It also--as a matter of great importance to Arkansas – extended the federal usury preemption started with the Brock Act. Again, the unintended regulatory twist surfaced: Amendment 60 was defeated in 1980, partially because of visible relief provided by federal overrides. First mortgage real estate loans were fully exempted, and business and agricultural loans over $25,000 could be made at five percent over the federal reserve discount rate.[34] "Five over the discount rate" resulted in an average spread over national prime in 1980 of 1.5 percent which, while considerably lower than in previous years, still allowed some room for doing non-prime business. The amendment also failed because it would have allowed legislative control of maximum interest rates. As in 1952 and 1974, voters were still in no mood for this. The once obscure usury provision in the 1874 Constitution may also have contributed to another ironic twist; the proposed new constitution of 1980 was also defeated.[35]

A Partial Synthesis: Amendment 60

In 1981, the national prime rate averaged 46 basis points above the maximum allowable lending rate in Arkansas (see Table 1). Lending in Arkansas, even that subsidized by vendor financing, ground to a halt. The market situation was made even more difficult by ambiguity on the part of the Arkansas Supreme Court in assessing local applicability of federal usury overrides (See Exhibit 1, December 22, 1980 through February 23, 1982). Little improvement in the market was apparent by mid-1982. In November, voters approved a new version of Amendment 60.

Amendment 60 did produce a new synthesis in Arkansas usury law; the century-old ten percent limit was removed and loss of principal on business and agricultural loans was dropped as a penalty. The remaining language of the amendment was patterned from the federal preemption contained in the DIDMCA. But the synthesis was only partial; subsequent court interpretations put the law once again into conflict with market reality. In a string of cases beginning with *Bishop v. Linkway Stores, Inc.* (See Exhibit 1, starting December 22, 1982), the language of Amendment 60 was interpreted to mean: (1) that the maximum rate which could be charged on consumer loans was the lower of seventeen per cent or five percent over the discount rate; and (2) that five percent over the discount rate in effect *at the time of the contract* became an absolute cap on the effective *ex post* rate which could be charged on any loan.[36]

The court interpretations of Amendment 60 meant that true floating-rate contracts could not be written on any loan and that, as a practical matter, consumer loan rates would have to be tied to the discount rate. It became inevitable, therefore, that new attempts at regulatory change would be made. Even without adverse court rulings, however, Amendment 60 would eventually have run aground. Linking the maximum loan rate to the federal reserve discount rate amounted to a precast financial blunder. The true cost of bank funds, then and now, has little to do with the federal reserve discount rate, and changes in the discount rate do not provide any clear indication of monetary conditions.[37] Why the discount rate was used as a market index remains a mystery. Either the drafters of the legislation were unaware of the problems it would cause, or they simply resorted to legal precedent and borrowed the language of the Brock Act. In any event, a sharp rise in interest rates in 1988 caught Arkansas bankers in another (predictable) usury squeeze when the federal reserve system chose to maintain the discount rate at an artificially low level relative to the market. The proposal to replace Amendment 60 was the legislative result.

The New Proposal: Synthesis or Stalemate?

The new proposal (HJR 1012) is intended to reverse strict court interpretations of the language of Amendment 60 and peg the usury ceiling on general credit at five-percentage points above the auction rate on fifty-two week U.S. Treasury Bills. (See Exhibit 1, March 2, 1989). Except for commercial and agricultural loans over $250,000, it does not attempt to do away with interest rate ceilings. It limits the maximum allowable rate on consumer loans to 17 percent. If passed, the proposal will represent another synthesis in the law, one which will allow banking in the state to become more compatible with market developments.[38] The new law would give financial institutions greater opportunities (and incentives) for diversifying their loan portfolios and would allow greater flexibility in structuring loan contracts to meet customers' needs. Lower legal transaction costs can be expected if the new proposal wins voter approval and survives court interpretation. Provided banks, finance companies or new retailers with vendor financing find the 17 percent maximum attractive enough to enter the consumer loan business, consumer credit markets in Arkansas should become more competitive and efficient.[39] If the new proposal fails, history provides us with two clear predictions. First, the courts will continue to have to deal with questions of regulatory avoidance. Second, another cycle of high interest rates sometime in the future will guarantee that voters will have to consider yet another constitutional amendment.

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[1] Article XIX, Section. 13 of the Arkansas Constitution of 1874 limited the maximum effective annual interest rate on any loan contract made in the state to 10 percent. Only four other states (California, Oklahoma, Tennessee and Texas) enacted constitutional limitations on interest. See Edward M. Penick's classic work on Arkansas usury law, "The Impact of Usury Law on Banks in Arkansas," *Arkansas Law Review and Bar Association Journal*, 8 (Fall 1954), p 424. Arkansas was the last state to amend its constitution.

[2] Arkansas 1989 General Assembly Resolution (HJR 1012).

[3] As applied to regulatory developments in banking in the United States, Kane's adaptation of Hegel has been proven to be remarkably correct. See Mona J. Gardner and Dixie L. Mills, *Managing Financial Institutions: An Asset/Liability Approach*, Dryden Press, 1968, Ch. 2. Kane characterized regulatory developments in banking in terms of the Hegelian dialectic – a process of change occurring in three stages: (1) thesis, (2) antithesis, and (3) synthesis. As applied to financial institutions, the thesis is an initial set of regulatory constraints designed, for reasons of political economy (some of which may be unannounced), to control bank behavior. An antithesis is developed as wealth-maximizing institutions battle with regulators to find legal and technological ways to circumvent the constraints. Ultimately, a synthesis of opposing arguments evolves and results in a new set of acceptable regulations. Then another cycle begins. The concept is developed in Edward J. Kane, "Good Intentions and Unintended Evil: The Case Against Selective Credit Allocation," *Journal of Money, Credit and Banking*, 9 (February 1977) 55-69.

[4] Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States*, 1867-1960, Princeton University Press, 1963, Chapter 2.

[5] Rendigs Fels, American Business Cycles, 1865-1897, University of North Carolina Press, 1959, p. 83.

[6] Friedman and Schwartz, p. 48. Friedman and Schwartz argue that because of poor output and price measurements, historical accounts of the economic severity of the contraction of the 1870s are typically overstated. The available evidence about conditions in Arkansas, although admittedly anecdotal for the most part, suggest a very real depression. See Mary P. Walsh, *In the Vaults of Time*, Little Rock, Ark., International Graphics Industries (1976), p. 3.. The more important point is that economic perceptions or beliefs, correct or incorrect, play a key role in the history of Arkansas usury law. That economic policy in Arkansas was being made for the benefit of outsiders was a popular perception before the Constitutional Convention of 1874; it ultimately provided the political support necessary for a drastic change in law.

[7] Eric Foner, *Reconstruction: America's Unfinished Revolution, 1863-1877*, New York, Harper and Row, 1988, p. 379.

[8] Carter Goodrich, "Public Aid to Railroads in the Reconstruction South," *Political Science Quarterly*, 71 (September 1956), 407- 442.

[9] Foner, p. 383.

[10] On September 17, 1873, three days before the New York Stock Exchange was forced to close, Henry Clews, a leading New York banker and republican, wrote to the Secretary of the Treasury, W.A. Richardson, warning of the approaching panic and requesting that the Treasury put additional currency into circulation. Richardson failed to act and was later blamed by bankers for the panic. In the words of Clews, who lost a fortune, the panic of 1873 was, "purely a money panic." See Henry Clews, *Twenty-Eight Years in Wall Street*, New York, Irving Publishing Co., 1888, p. 698. Friedman and Schwartz, Ch. 2, reach a similar conclusion.

[11] Reconstruction legislators increased state debt from 3 to 12 million dollars, but only 100 thousand was actually spent on public projects. County debt increased at a similar rate. By 1870 state and local tax collections were 4.5 times higher than in 1860. See Walter Nunn, "The Constitutional Convention of 1874," *Arkansas Historical Quarterly*, 27 (Autumn, 1968), p. 182.

[12] In 1836 the first Arkansas legislature passed a law which limited bank loan rates to a maximum of 8 percent. See W. B. Worthen, *Early Banking in Arkansas*, Prepared at the Request of the Arkansas Bankers' Association for its Meeting in April, 1906,

Little Rock: Democrat Printing Co. (1906), p. 45. Before the Civil War, the customary rate of interest charged on loans in Arkansas ranged from 6 percent to 10 percent and was generally 10 percent from 1860 to 1868 (Worthen, p. 127). Although the rate limitations given the 1836 legislation were potentially binding, they probably had little impact, because market rates did not differ markedly from the usury maximum and, more important, no penalties were stated in case excessive interest was charged. See Penick, p. 423. Usury did not become a political issue in Arkansas until after the Civil War.

[13] Arkansas Constitution of 1868, Art. XV, S. 21. Elimination of southern usury law was part of the national program for Reconstruction advanced by Republicans (Foner, p. 381). Usury laws were originally transported to the American colonies as part of the British legal system. By the mid-nineteenth century usury laws were viewed in Great Britain as incompatible with economic theory and sound merchant banking and trading practices. See Eugen von Bohm-Bawerk, *Capital and Interest*, Libertarian Press, South Holland, Illinois, 1959, Volume I, Chapter III. Interest rate controls were then eliminated in Great Britain and eased (or ignored) in many eastern states of the U-S.. Contrary to Popular opinion in Arkansas about the motives of the framers of the 1868 Constitution, elimination of the usury law was much in keeping with business practices being advanced at the time. Overall, the Arkansas Constitution of 1868 has been judged by researchers to be a superior working document to the constitution which replaced it. See Cal Ledbetter, Jr., "The Constitution of 1868: Conqueror's Constitution or Constitutional Continuity?," *Arkansas Historical Quarterly*, XLIV (Spring 1985).

[14] W.B. Worthen reported (p. 128 and cited in Penick, p. 423) that annual loan rates of 24 percent were the norm in the early 1870s and that 60 percent per year was not uncommon. We do not have, however, continuous (contractual) bank rate data specifically for Arkansas during this period. If the rates reported by Worthen were commonly available in the market, the arbitrage potential for Eastern capital would – albeit with great risk – have been enormous. The real (Gold) yield on treasury long bonds fell steadily during the post-war contraction and was never over 10 percent, and the currency yield on railroad bonds remained essentially flat at 8 percent. See Friedman and Schwartz, Chart 6, p. 68.

[15] Large-scale inflows of risk capital into the South did not occur until after Reconstruction. See Foner, p. 391.

[16] Nunn, p. 182.

[17] Nunn, p. 203-204. Also see Ledbetter, p. 40.

[18] Arkansas Constitution of 1874, Article XIX, Section 13.

[19] Nunn's account of the proceedings of the convention ("The Constitutional Convention of 1874") makes no mention of Article XIX, Section 13.

[20] The New York Journal of Commerce as quoted in "The New Constitution", *Arkansas Gazette*, September 26, 1874.

[21] Fels, p 90.

[22] Nunn, p. 186.

[23] Nunn, p. 193.

[24] W.B. Worthen, p. 117.

[25] Bobby L. Lovett, "Some 1871 Accounts for the Little Rock, Arkansas, Freedman's Savings and Trust Company," *Journal of Negro History*, 66 (Winter 1981-1982), 322-328.

[26] Penick, p 423.

[27] Penick, Sections III and IV.

[28] In addition to Penick's analysis, see: George B. Collins and Virginia H. Ham, "The Usury Law of Arkansas: A Study in Evasion,*Arkansas Law Review*, 8 (Fall,1954) pp. 399-419.

[29] As quoted by Penick. p. 451.

[30] See: Gene C. Lynch and Holland C. Blades, "Credit Policies and Store Locations in Arkansas Border Cities: Merchant Reactions to a 10 Percent Finance Charge Ceiling," Credit Research Center, Purdue University, Monograph No. 2, 1976.

[31] Penick, p 456. Presumably, in the early 1950s, commercial bankers did not consider finance companies to be "legitimate" lenders.

[32] The Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA), and the Depository Institutions Act of 1982 (DIA). Both acts can be viewed as legislative amendments to regulations which were no longer enforceable. See: Robert E. Litan, *What Should Banks Do?* Washington, D.C.: The Brookings Institution (1987) Ch. 2.

[33] Exhibit 1 is not intended as a comprehensive summary of legal issues involving usury in Arkansas during this period. More complete legal reviews are given by: James E. Mitchell and W. Christopher Barrier, "Usury in Arkansas – Revisited, Revised and Reaffirmed," *University of Arkansas at Little Rock Law Journal* 2 (1979) 323-356; W. Christopher Barrier, "Usury in Arkansas: The 17% Solution," *Arkansas Law Review* 37 (1983) 572-611; W. Christopher Barrier, "Usury in Arkansas: Interpreted, Preempted and Proposed," *Arkansas Lawyer* (July 1989) 101-105; and Kenneth E. Galchus, Charles G. Martin and Ashvin P. Vibhakar, "A History of Usury Law in Arkansas: 1836-1990," UALR Department of Economics and Finance Working Paper (Fall 1989),

forthcoming, *University of Arkansas at Little Rock Law Journal* (1990).

[34]The federal interest rate overrides never applied to consumer credit and the maximum effective lending rate remained fixed at ten percent. But the total volume of such credit in the state was less constrained than was popularly supposed. Since banks were essentially out of this market, the gap was supplied though vendor (point-of-sale) credit. See: Richard L. Peterson, "Usury Laws and Consumer Credit: A Note," *The Journal of Finance* 38 (September 1983) 1299-1303.

[35]Proposed Amendment 60 received the support of 45 percent of the voters, but the proposed new constitution only gained 35 percent of the vote. These results suggest that voters found fault with many other features of the proposed constitution. Both proposals were also hurt by lobbying efforts which produced confusing and often conflicting publicity. See Galchus, Martin, and Vibhakar, p. 38-40.

[36]Many other issues were tried in the courts during this period, but were peripheral, dealing again with the applicability of federal overrides or with tests of new avoidance schemes. See: Barrier," Usury in Arkansas: The 17% Solution."

[37]The economic literature on this point is extensive; for a summary review and analysis, see: John H. Wood and Norma L. Wood, *Financial Markets*, Harcourt Brace Jovanovich (1985) Ch. 9. They conclude (p. 240): "Whatever the reasons for the observed relationship between Fed discount and market rates, an investor conversant with history is not likely to bet that a change in the Fed discount rate will reinforce movements in market rates in the same direction."

[38]Given the rate and quantity restrictions that are retained by HJR 1012, most particularly the use of a single (T-Bill) rate for a market index, the potential would still exist for future usury problems. A steep upward-sloping yield curve could produce a constraint on term lending. Thus, even if the proposal passes, market conditions in the future may require that yet another constitutional amendment be considered.

[39]The consumer credit market in Arkansas is dominated by vendor (point-of-sale) financing. The potential for price discrimination between cash and credit customers is high when credit is supplied by vendors. For a theoretical treatment, see: Michael J. Brennan, Vojislav Maksimovic, and Josef Zechner, "Vendor Financing," *The Journal of Finance* 43 (December 1988) 1127-1141. Empirical evidence of price (and income) discrimination is given in: Daniel J. Villegas, "The Impact of Usury Ceilings on Consumer Credit," *Southern Economic Journal* 56 (July 1989) 126-141.

Appendix: Table 1

Selected Money Market Interest Rates[1] and Incidence of Newspaper Reports on Developments in Arkansas Usury Law[2] (1974-1988)

Year	Fed Funds Rate	Prime Rate	Discount Rate	Discount + 5% - Prime Rate	10% - Prime Rate[3]	# of News Reports
1974	10.50 (1.39)	10.80 (1.13)	7.83 (.23)	+2.03	-0.80	71
1975	5.82 (0.57)	7.86 (0.85)	6.25 (.44)	+3.39	+2.14	7
1976	5.05 (0.26)	6.84 (0.25)	5.50 (0.11)	+3.66	+3.16	2
1977	5.54 (0.73)	6.82 (0.56)	5.46 (0.31)	+3.64	+3.18	4
1978	7.93 (1.11)	9.06 (1.16)	7.46 (1.07)	+3.40	+0.94	39
1979	11.19 (1.44)	12.67 (1.45)	10.28 (1.01)	+2.62	-2.67	131
1980	13.36 (3.30)	15.27 (3.00)	11.77 (1.06)	+1.50	-5.27	55
1981	16.38 (2.22)	18.87 (1.53)	13.41 (0.61)	-0.46	-8.81	66
1982	12.26 (2.31)	14.86 (1.92)	11.02 (1.20)	+1.16	-4.86	79
1983	9.09 (0.38)	10.79 (0.25)	8.50 (0.00)	+2.71		7
1984	10.23 (0.91)	12.02 (0.78)	8.80 (0.24)	+1.76		8
1985	8.10 (0.29)	9.93 (0.48)	7.69 (0.23)	+2.76		3
1986	6.81 (0.72)	8.33 (0.74)	6.33 (0.75)	+2.99		20
1987	6.66 (0.35)	8.20 (0.53)	5.66 (0.23)	+2.46		6
1988	7.57 (0.73)	9.32 (0.69)	6.20 (0.24)	+1.88		12

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[1] Means of monthly average rates reported by *Citibase*, Citicorp Investment Bank, New York, N.Y. (May, 1989 release). Standard deviations in parentheses.

2Number of citations reported by S.J. Henderson, *Arkansas Gazette Indexes* (1974-1978), Arkansas Tech University Library, Russellville, Arkansas, under the headings "Interest and Usury"(1974-1977) and "Credit" (1978-1988).

[3] Ten-percent was the usury limit imposed on consumer loans in Arkansas until December 2, 1982 when Amendment 60 to the State Constitution became effective.

Appendix: Exhibit 1

Chronological Summary (1974-1989) of Major Events Related to Usury Law in Arkansas, the Phase-Out of Regulation Q[1], and Money Market Conditions[2]

October 29, 1974	The "Brock Act"[3] provides federal preemption of state usury law for national and federally insured state banks and thrifts. The law allows such institutions to charge five percent above the federal discount rate on business and agricultural loans over $25,000. It does not apply to all other types of loans or to vendor (point-of-sale) financing. Set to expire on July 1, 1977, the intent of the act is to provide temporary federal legislative relief from binding usury ceilings in states with constitutionally imposed limits, essentially Arkansas and Tennessee.[4] Active political movements are underway in both states to challenge (and defend) existing usury law.
November 5, 1974	Arkansas Amendment 57 to permit the legislature to set interest ceilings fails in the general election; it gains only 13% of the vote.[5] However, the Brock Act preemption remain in effect.
July 1, 1977	The Brock Act expires. Arkansas' constitutionally imposed 10% usury ceiling applies uniformly. Market interest rates, however, are considerably lower than the usury limit. Fed funds trade at an average of 5.39% in July. N.Y. Prime is posted at 6.75%, and the federal reserve discount rate averages 5.24%.
November 2, 1978	Market interest rates jump upward; N.Y. prime exceeds 10%. National banks in Little Rock raise their posted lending rate to 10.5%, 1% above the discount rate.[6] Justification for this new preemption of State Law is based on a (previously unused) 1933 amendment to the National Bank Act.[7]
June 1979	Disintermediation accelerates at commercial banks and thrifts as 3-Mo. U.S. Treasury Bill yields approach 10% while ceiling rates on savings accounts at commercial banks remain at 5%. With total assets of less than $4 billion as of year-end 1977, money market mutual funds reach $10.9 billion in 1978 and will close 1979 with $45.2 billion.[8] Regulation Q is changed to permit small saver certificates with no minimum denomination, maturity of 30 months or more, and ceiling rates based on the yield on 2 1/2 year Treasury securities.
Sept. 13-14, 1979	Federally chartered savings and loans in Arkansas offer money market certificates with a return greater than 10%.

Appendix: Exhibit 1 (Cont.)

	The State Securities Commissioner advises against exceeding a 10% ceiling for lending or borrowing. Commercial banks generally do not follow the thrift's lead.[9]
Sept. 18, 1979	The Fed discount rate is raised to a record 11%,permitting nationally chartered banks to charge 12% on business and agricultural loans in excess of $25,000. State chartered banks are put at a 2% disadvantage relative to the 10% usury ceiling.
October 6, 1979	The Federal Reserve, under the leadership of Paul Volker, changes operating procedures to target the money supply instead of the Fed funds rate.[10] Fed funds rates average 13.77% in October; the Fed discount rate averages 200 basis points less.
November 5, 1979	The "Borrowers' Relief Act of 1979" becomes law.[11] This stopgap measure, designed specifically to apply to Arkansas, permits all federally insured institutions (state or national charter) to charge 5% above the federal reserve discount rate on business and agricultural loans in excess of $25,000. Consumer and real-estate loans are still bound by the 10 percent limit. State-imposed ceilings on rates paid on deposits are also preempted. The Fed discount rate in November is 12%; N.Y. prime averages 3.55% higher.
December 28, 1979	President Carter signs temporary federal legislation which preempts state usury ceilings on residential real estate loans secured by a first mortgage.[12]
April 1, 1980	The Depository Institutions Deregulation and Monetary Control Act extends and reinforces federal preemption of state usury laws.[13] Business and agricultural loans over $25,000 are again limited to 5% above the discount rate. No limits are placed on residential real estate loans secured by a first mortgage. All other loans are limited to 1% above the discount rate. The Fed discount rate is at 13%, but N.Y. prime averages over 5% higher in March (18.3%).
October 8, 1980	A rider to a federal housing act signed by President Carter further preempts state usury laws by dropping the minimum loan amount on business and agricultural loans from $25,000 to $1,000.[14] All other bank loans, except first-mortgage residential real estate, remain limited to 1% above the discount rate.

Appendix: Exhibit 1 (Cont.)

November 4, 1980	Amendment 60 to the Arkansas Constitution fails in the general election. The legal status of federal preemption of state usury law becomes unclear to Arkansas lenders.[15]
December 19, 1980	The prime rate hits 21.5%, an all-time high.[16]
December 22, 1980	The Arkansas Supreme Court rules in *McInnis v. Cooper Communities*, Inc.[17] that the federal preemptions of state usury law provided by the DIDMCA are not applicable to Arkansas. Lenders are reportedly in a state of shock.[18]
January 1, 1981	NOW accounts permitted nationwide. The average cost of bank funds continues to increase.
January 16, 1981	Citing concern over Arkansas Supreme Court rulings on the applicability of state usury law,the Federal National Mortgage Association stops buying residential mortgages in the State.[19]
February 23, 1981	The Arkansas Supreme Court reverses its previous decision in *McInnis v. Cooper Communities*, Inc.[20] The federal preemption remain intact, and will apply until the general election in November 1982. Throughout 1981, however, N.Y. prime averages 18.9%, exceeding the usury limit in Arkansas, which at "five over the discount rate "for business and agricultural loans, averages 18.4%. While bank loans to consumers can be made at 1 percent over the discount rate, vendor financed loans remain fixed at 10 percent.
November 2, 1982	Amendment 60 passes in the Arkansas general election. The amendment reportedly "sets a 17% ceiling on consumer loans, and a floating ceiling five percentage points above the federal discount rate on farm and business loans."[21]
December 2, 1982	Amendment 60 becomes effective – replaces Section 13, Article XIX of the Arkansas Constitution of 1874.
December 14, 1982	Money market deposit accounts (MMDAs) are created. Banks can offer any rate on accounts greater than $2,500, but only six transfers per month are permitted.
December 22, 1982	*Bishop v. Linkway Stores, Inc.*[22] is filed in Pulaski County Chancery Court. Bishop is a test case intended to resolve an emerging legal controversy about the correct interpretation of Amendment 60 – whether the maximum rate on consumer loans floats with the discount rate or is fixed at 17%.

Appendix: Exhibit 1 (Cont.)

January 5, 1983	Super NOW account created with the same features as the MMDA, except that unlimited transfers are permitted.
February 1983	Bank and thrift MMDAs total $277.8 billion and exceed money market mutual fund assets ($204.8 billion) for the first time.
July 12, 1983	The Arkansas Supreme Court overturns the Pulaski County Chancery Court in *Bishop v. Linkway Stores, Inc.*, ruling that the maximum legal rate on consumer loans is the lower of the discount rate plus 5% at the time of the contract or 17%. *Bishop* leaves unresolved another critical issue—whether Amendment 60 permits floating rates loans or mandates an absolute cap at the discount rate plus 5% "at the time of the contract." This issue is never tested directly, but a subsequent decision of the Arkansas Supreme Court in *Bank of Evening Shade v. Linsey*[23] is interpreted to mandate a fixed cap on variable rate loans at the discount plus 5% at the time of the original contract.[24] Thus, true variable rate loans can no longer be made in Arkansas.
January 1984	Arkansas bankers lobby unsuccessfully in Washington for a new federal preemption of state usury law.
January 1, 1986	Phase-out of Regulation Q essentially complete as minimum denominations on MMDAs and Super NOWs are eliminated. As a practical matter, the cost of bank funds is now market driven, but lending rates in Arkansas remain tied to usury limits.
July 5, 1988	The Arkansas Supreme Court, in *Southwest Arkansas Communications v. Arrington*[25] declines to overturn its previous interpretation of Amendment 60.
August 1988	Arkansas financial institutions are caught in an interest rate "squeeze" as market interest rates rise faster than the Fed discount rate. (Fed funds will trade at an average of 183 basis points above the discount rate for the last six months of 1988). Arkansas bankers meet to propose a new constitutional amendment to replace Amendment 60.[26]
March 2, 1989	The 1989 Arkansas General Assembly approves a proposal (HJR 1012) for a constitutional amendment to replace Amendment 60. If passed in the 1990 general election, the new amendment purportedly would: (a) make a distinction

between "consumer credit" (loans, credit sales,or other extensions of credit for personal, family or household purposes, and "general credit" (any loan, credit sale, or extension of credit which is not consumer credit, including loans for business, investment or agricultural purposes; (b) define a maximum credit "formula rate" as that rate which is five-percentage points above the average bond equivalent yield of the fifty-two week U.S. Treasury Bill auction rate; (c) limit fixed-rate general credit contracts to the maximum formula rate at the time of the contract; (d) permit the rate charged on variable rate general credit contracts to float over time at a maximum lawful rate equal to the formula rate; (e) limit the maximum lawful rate on consumer credit to 17%, regardless of the maximum lawful rate on general credit; (f) set no maximum lawful rate which maybe charged on general credit contracts in an amount over $250,000; and (g) leave the penalties the same as Amendment 60.

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[1] Federal Reserve regulation of deposit rate ceilings. The chronology of the phase-out of Regulation Q is from: Review, Federal Reserve Bank of St. Louis, March 31, 1986.

[2] Based on monthly average money market interest rates reported by *Citibase,* Citicorp Investment Bank, New York, N.Y. (May, 1989 release).

[3] Public Law No. 93-501, 88 Stat. 1557 (1974).

[4] The Brock Act was held constitutional in 1976 in *Stephens Security Bank v. Eppivic Corp.* (411 F. Supp. 61 [W.D. Ark. 1976], aff'd, 533 F. 2d 102 [8th Cir. 1977]).

[5] *Arkansas Gazette, November 6, 1974, Sect. A, p. 1.*

[6] *Arkansas Gazette, November 3, 1979, Sect. A, p. 1.*

[7] 12 U.S.C. Sect. 85.

[8] *Quarterly Review, Federal Reserve Bank of New York (Winter 1981-1982), p. 11.*

[9] *Arkansas Gazette, September 14, 1979, Sect. A, p. 1.*

[10] "The Volker Years at the Federal Reserve," *The Wall Street Journal*, June 5, 1987.

[11] Pub. L. No. 96-104, 93 Stat. 789 (1979).

[12] Pub. L. No. 96-161, 93 Stat. 1233 (1979).

[13] Pub. L. No. 96-221, 94 Stat. 161 (1980).

[14] Pub. L. No. 96-399, 94 Stat. 1647 (1980).

[15] *Arkansas Gazette, November 16, 1980, Sect. E, p. 5.*

[16] *The Wall Street Journal, supra, N. 10.*

[17] Unpublished decision.

[18] *Arkansas Gazette, December 23, 1980, Sect. A, p. 1.*

[19] *Arkansas Gazette, January 17, Sect. C, p. 5.*

[20] 271 Ark. 503, 611 S.W. 2d. 767 (1981).

[21] As quoted, *Arkansas Gazette,* November 3, 1982, Sect. A, p. 1.

[22] 280 Ark. 106, 655 S.W. 2d. 426 (1983).

[23] 278 Ark. 132, 644 S.W. 2d. 920 (1983).

[24] See: Barrier, W. Christopher, "Usury in Arkansas: The 17% Solution," *Arkansas Law Review* 37 (1983), p. 578.

[25] 296 Ark. 141, 753 S.W. 2d. 267 (1988).

[26] *Arkansas Gazette, August 6, 1988, Sect. C, p. 1.*

The Estimated Effects of Current and Proposed Usury Ceilings on Commercial Loans in Arkansas*

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Introduction

The Arkansas State Legislature in 1989 provided for a proposed constitutional amendment, the 1990 Interest Rate Control Amendment, to change the usury ceiling. The voters will act on this proposal on November 6, 1990. One of the major changes in the amendment is to change the current discount-rate indexceiling on commercial loans to a Treasury-index ceiling. Specifically, the proposed change in rates is from the discount rate plus five percent to five percentage points above the average bond equivalent yield of the one-year U.S. Treasury bill auction rates during the immediately preceding calendar quarter. Another change is that there will be no ceiling for commercial credit for an amount equal to or greater than $250,000. If the amendment is passed then it would become effective on January 1, 1991.

One of the effects of a usury ceiling is credit rationing – some borrowers will not be able to obtain the credit they need. When interest-rate ceilings are binding, lenders will raise their credit standards, upgrade the credit quality of borrowers by only making loans to the borrowers that meet their credit standards, and increase loan rejection rates. As a result, many loan applicants in the high risk category will not meet the lenders' credit standards and be priced out of the credit market. Small loans with relatively higher administrative costs and long-term fixed-rate loans with higher interest-rate risk may also be restricted.

One of the best ways to measure the effects of an interest ceiling is to compare the distribution of loans in a state with

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ceilings to areas without ceilings. To the extent that national loan markets are not subject to any ceiling, they are a proxy for the loan markets in Arkansas that would exist in the absence of usury restrictions. Thus, inferences can be drawn about the effect of the current and proposed usury ceilings.

The purpose of the study is to compare the current ceiling and proposed ceiling with terms of lending in the rest of the United States from January 1983 to August 1989. The current ceiling (Amendment 60) was passed in December 1982. The comparison of the current and proposed ceilings with interest rates in other states over time should provide the bankers and voters of Arkansas a good picture of how restrictive the ceilings are.

Methodology

In order to compare the current discount-rate index to the proposed Treasury index, information was obtained from the Federal Reserve System. This information is contained in the *Federal Reserve Bulletin* and reported as the Terms of Lending at Commercial Banks. Data contained in this report were collected from a survey of 340 commercial banks of all sizes in regard to gross commercial loan extensions made during the first full business week in the mid-month of each quarter. The Terms of Lending report is published four times per year—in February, May, August, and November.

The present study compares the current discount-rate index and the proposed Treasury index with the weighted average effective loan rate for 25 quarters.[1] The time period under review begins with February 1983 and continues through August 1989.[2] These rates are compared for the following commercial loan categories:

Fixed-Rate Short-Term (000s)
1 - 24
25 - 49
50 - 99
100 - 499

Floating-Rate Short-Term (000s)
1 - 24
25 - 49
50 - 99
100 - 499

Fixed-Rate Long-Term (000s)
1 - 99
100 - 499

Floating-Rate Long-Term (000s)
1 - 99
100 - 499

In order to compare the two interest-rate ceiling indexes, the percent of the national loan market that exceeds each index was calculated. For each loan category and each time period a t-value was computed as follows:

$$t_{it} = \frac{(DR_t \text{ or } TI_t) - X_{it}}{SD_{it}} \qquad i = 1,\ldots,12 \quad t = 1,\ldots,25$$

where DR_t = the current discount rate index for the tth period.

TI_t = the proposed Treasury index for the tth time period.

X_{it} = the weighted average interest rate for the ith category and the tth period.

SD_{it} = the standard deviation of the ith category and the tth time period.

The resulting t-value was then converted to its percentile equivalent which represents the percentage of all loans made in this category that were below the index ceiling. This percentage was then subtracted from 100% to obtain the percent of the national market that exceeds the index.

Results

Table 1 presents a summary of data showing the percent of the national loan market that exceeds each index for each loan category during the time period reviewed.[3] For each loan category, the

Table 1

Percent of National Loan Market* Exceeding Index

Loan Category (in thousands)	Arkansas Discount Rate Index			Proposed Treasury Index			Reduction**		
Short-Term Fixed-Rate	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*
$1-$24	59.7	77.6	53.7	45.5	53.7	23.8	14.2	54	2
$25-$49	52.4	58.0	47.0	41.5	53.2	27.7	10.9	30	2
$50-$99	50.2	61.6	42.5	38.1	52.9	19.9	12.1	40	2
$100-$499	40.5	62.4	10.4	29.0	47.2	5.1	11.5	44	2
Short-Term Floating-Rate	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*
$1-$24	49.3	74.5	32.4	31.0	47.2	16.3	18.3	44	4
$25-$49	43.1	72.5	18.3	24.2	46.5	3.6	18.9	51	4
$50-$99	38.5	75.6	6.0	20.2	38.2	1.0	18.3	61	3
$100-$499	27.4	68.9	1.0	11.1	29.7	1.0	16.3	57	0
Long-Term Fixed-Rate	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*
$1-$99	56.2	62.7	51.6	49.8	55.4	32.0	6.4	22	1
$100-$499	48.3	61.1	36.7	39.7	55.8	27.8	8.6	28	1
Long-Term Floating-Rate	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*	*AVG*	*HIGH*	*LOW*
$1-$99	47.8	68.5	21.7	35.2	48.6	14.3	12.6	41	1
$100-$499	39.4	61.7	13.4	25.9	48.0	3.6	13.5	37	1

*As determined by the weighted-average interest rates (percent per annum) and the standard deviation of those rates in a national survey of approximately 340 commercial banks and reported in the Terms of Lending at Commercial Banks (*Federal Reserve Bulletin*).

**This category represents the percent improvement using the proposed Treasury index and is defined as the Arkansas Discount Rate index minus the proposed Treasury index.

average, high and low values for the percents exceeding the two indexes and the reduction in the percent of the loan market exceeding the discount rate index is presented. By examining this data, two results are apparent: (1) The proposed Treasury index is an improvement over the current discount-rate index for all loan categories during the entire time period. In no case was the discount rate index less restrictive than the proposed Treasury index; (2) The proposed Treasury index still effectively shuts-out much of the loan market, particularly the smaller loans.

The data on short-term, fixed-rate loans indicate that, on average, approximately 60% of the small loans ($1,000 - $24,000) made nationally during the period under review were at rates above the Arkansas discount-rate index. Additionally, as recently as February, 1989, approximately 78% of these smaller loans were at rates above the discount-rate index. The proposed Treasury index would have allowed 14.2% more of the loan market to be funded, but still effectively shuts-out over 45% of this market on average.

The data also indicate that as the size of the loan category increases, the percent of loans made above the two indexes decreases. That is, less of the loan market is shut-out as the loan size increases. Again, the proposed Treasury index appears less restrictive than the current discount-rate index.

The data showing the percent of the loan market exceeding the index with regard to short-term, floating-rate loans indicate, as would be expected, that the two indexes are not as restrictive for the short-term, floating-rate loans as for the short-term, fixed-rate loans in the same loan size categories. However, on average over 49% of all short-term, floating-rate loans of less than $25,000 were above the Arkansas discount rate index. Furthermore, in February 1989, over 74% of these loans were made at rates above the currently used index. As with the short-term, fixed-rate loans, the percentage of short-term, floating-rate loans made at interest rates above the indexes decreased as the size of the loan increased.

In the case of long-term, fixed-rate loans, the figures indicate that approximately 56% of all loans under $100,000, and over 48% of loans over $100,000, were made at interest rates above the current discount rate index. Also in the long-term, fixed-rate category, the proposed Treasury index provided a much smaller improvement over the discount-rate index when compared to the other loan categories.

For the long-term, floating rate loans, the numbers indicate that 48% of all loans under $100,000 and 39% of loans over $100,000 were made at interest rates above the current discount rate index. Just as with the short-term loans, both indexes were less restrictive for the floating-rate loans than for the fixed-rate loans.

Conclusions

Four overall conclusions can be drawn from the study. First, the proposed Treasury index was less restrictive than the current discount-rate index in all loan categories. To the extent that national loan markets represent the potential loan markets in Arkansas, the Treasury index would allow more loans to be made in Arkansas. Second, both indexes became less restrictive as the loan size increased for all four loan categories. Third, by using the Treasury index the decrease in the percent by which the loan market exceeded the discount-rate index was larger for floating-rate than fixed-rate loans. This factor will tend to favor floating-rate loans. Fourth, even though the proposed Treasury index would probably allow more loans to be made, it would still restrict the loan markets in Arkansas, particularly small loans and fixed-rate loans. This factor may severely discourage the development of small businesses.

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[1] The *Federal Reserve Bulletin* defines the weighted average interest rate on loans as the approximate compounded annual interest rate on each loan calculated from the survey data on the stated rate and other terms of the loan; then in computing the average of these approximate effective rates, each loan is weighted by its dollar amount.

[2] Two quarters of data were not available in the *Federal Reserve Bulletin*, November, 1984 and May, 1989.

[3] The data underlying Table 1 is available upon request from the Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Fayetteville, Arkansas 72701.

Editor's Note

This issue's *Arkansas Economic Perspectives* features an article on economic development policies and the annual report on the Arkansas mineral industry.

The article by Dr. Joseph A. Ziegler, Chairman of the Department of Economics, "Industrial Location and State and Local Tax and Other Financial Incentives," reviews the research that has been done on the effectiveness of efforts by state governments to attract industry by granting tax breaks. His findings, while somewhat different from the conventional wisdom, are interesting and informative nonetheless.

"The Mineral Industry of Arkansas in 1989" presents recent data and analysis on this important Arkansas industry.

We welcome your comments.

DRM, Editor

The Arkansas Economy

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Industrial Location and State and Local Tax and Other Financial Incentives

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Introduction

In the Fall 1989 issue of this *Review*, Donald Market[1] analyzed the relationship between income and employment patterns in Arkansas counties. He noted that counties with higher proportions and growth of manufacturing employment tend to have higher levels and growth of per capita personal income. This relationship tends to hold not only because wage rates in manufacturing industries are generally higher than in other industries but also because growth of manufacturing employment and income stimulates demand for other goods and services – for example, hair and beauty shops, restaurants, supermarkets, movies, and automobiles – thereby creating additional employment and income earning opportunities.

State and local policymakers are aware of this relationship and often focus economic development efforts on manufacturing firms. Generally they offer a variety of services that might include assistance with identifying appropriate sites, improvement of public services, tax breaks and other types of financial aid. In Arkansas, many of these activities are administered by the Arkansas Industrial Development Commission. The competition among states for jobs is keen and most states offer a fairly comprehensive package of assistance. On the local level, the types and extent of assistance vary considerably, with larger, more urban areas generally providing more assistance than smaller areas.

A primary weapon in the battle for jobs is the offer of tax concessions and other financial assistance such as low interest loans and labor training. The purpose of this article is to look at what we know about the impact of these financial incentives on the location of firms. Do they make a difference? If so, how much? If not, why not? We will review first what is known about factors that influence location and then examine in more detail the effect of tax and financial incentives on location decisions.

What Do We Know About Industrial Location Decisions?

There are many studies of factors that influence the location of industrial firms, but, unfortunately, no two are the same. Some focus on specific industries or regions while others have a broader focus. Some use survey data, others use econometric models. Some examine large industries, others look only at small companies. Some distinguish among the types of location decisions – whether to add capacity on-site, build a new plant, or relocate – while others do not. Because of these differences no two studies reveal identical findings.

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*Author's Note: The generalizations contained in this article are based on findings of numerous studies of industrial location. Not all generalizations will apply to specific firms or states. A relatively recent review of industrial location as well as an extensive bibliography, is found in John P. Blair and Robert Premus, "Major Factors in Industrial Location: A Review," *Economic Development Quarterly*, Vol. 1, No. 1, 1987, pp. 72-85.

Nevertheless, the results of these studies are sufficiently alike to make the the following generalizations: (1) traditional location factors – market factors, cost and availability of labor, transportation facilities, and cost and availability of raw materials – are important, but their importance varies by type of industry and firm; (2) technological change and more efficient transportation systems have lessened the importance of access to raw materials; (3) factors such as unionization, quality of education, quality of life, and business climate are becoming more important; and (4) taxes and other financial incentives have little or no effect on industrial location choice between states.

Markets, Labor, Transportation, and Raw Materials are Important

To survive a firm must make a profit. Consequently, in choosing a location it must consider the following: (1) the size of its potential market and the cost of serving it; (2) the availability, productivity, and expense of attracting the type of labor it needs; (3) the cost of transporting needed inputs to the plant and the finished product to the customer; and, finally, (4) the cost and availability of necessary raw materials. In general, these four factors – markets, labor, transportation, and raw materials – play an important role in plant location.

The relative importance of these factors in location decisions tends to vary with the type of industry. For example, industries with relatively high value-added – for example, food processing, printing, plastics fabrication – tend to put greater emphasis on market factors. By contrast, more labor intensive and less skill demanding industries, such as apparel and shoes, seek locations with low labor costs.

Technological Change Has Lessened Dependence on Raw Materials

The use of new production techniques has lessened the importance of proximity to raw materials. Generally, technology has increased the number of steps in the production process and lowered transportation costs, thereby reducing the importance of the proximity to raw materials. A classic example is the steel industry. At one time it was dependent on large and relatively inexpensive sources of coal and iron ore, but the development of more energy efficient furnaces and other technological advances have lessened this dependence.

Contributing to the move away from sources of raw materials is the increasing use of synthetic products in the manufacturing process. The substitution of plastics for steel and aluminum, synthetic fibers for cotton, and synthetic rubber for natural rubber are a few examples.

Unionization, Quality of Life, and Business Climate are Becoming More Important

Because of improved transportation and communications systems, reduced dependence on raw materials, and technological change industries now place greater emphasis on other factors that affect profit. Of rising importance to location decisions is the extent of unionization, quality of life factors, and business climate (taxes, public services, attitudes toward business, work ethic, etc.)

Given a choice, most manufacturers would choose to remain nonunion. The reason is not so much to avoid higher wages because the wage a nonunion firm must pay to remain nonunion may very well have to be competitive with union wages. Rather, it is to avoid the rigidity of union-negotiated work rules covering job classifications, promotion procedures, and task definitions which tend to limit a firm's flexibility in responding to new technology or enhancing worker productivity.

As firms have become more "footloose" because they are less tied to market factors and raw materials, they have given more emphasis to quality of life factors. Climate, environmental quality, educational opportunities, cultural activities, etc., have become increasingly important in the location decision.

Taxes Don't Have Much Impact on Interstate Location

Recent studies of business location decisions point to a growing emphasis of business climate as a significant factor. Though not well-defined, the term "business climate" usually refers to state and local tax structure and financial incentives, public services, attitudes toward business, work ethic, and the cooperativeness of the governmental structure. Presumably, a "better" business climate – lower taxes, higher level and quality of public services, strong work ethic, and cooperative government officials – encourages economic growth while a "worse" business climate hinders growth. Because of the ambiguous nature of the term "business climate", however, its effect on industrial location decisions has proven difficult to measure.

More easily quantified is the importance of state and local tax breaks and other financial incentives on industrial location decisions. The preponderance of evidence indicates that, contrary to the conventional wisdom of many state and local public officials and businessmen, financial incentives generally have little or no impact on location decisions between states.

Why Tax Breaks and Other Financial Incentives Don't Matter Much

There are several reasons why financial inducements do not have an important impact on interstate location decisions: (1) traditional location factors – markets, transportation, raw materials, and labor-- are more important; (2) interstate differences in taxes are small; (3) business taxes can to some degree be shifted to consumers and workers; and (4) deductabilty of state and local taxes for federal income tax purposes mitigates their impact.

Small Relative Importance of Taxes

Typically firms make location decisions sequentially, that is, they first select a state or region and then select a specific site. At the first stage they focus on labor, climate, markets, raw materials, and other variables which may vary significantly between regions, but be virtually the same within a region. At this stage taxes are a relatively unimportant consideration because they are but a small fraction of costs in comparison to labor, energy, and raw material costs.

Once a state or region is identified, firms select the final site based on comparison of factors such as land costs, water and sewers, schools, and access to major roads. Studies indicate that it is at this level that taxes will most likely make a difference in the location decison, especially if competing sites are relatively close to one another.[2]

Interstate Tax Differences Are Small

State and local governments constantly change their packages of financial inducements to lure industry, not wanting to get too far out of line with neighboring states. Consequently, whatever differentials remain are usually not large enough to give a state a significant advantage in attracting industry.[3]

Business Taxes Can Be Shifted

Taxes typically levied on businesses—corporate income tax, sales tax, and property tax—are technically paid by them. However, firms can shift some or all of their tax burden to consumers by charging higher prices for their products or to workers by paying lower wages. Although the extent of tax shifting tends to vary by type of tax and industry, there is considerable evidence that firms can raise prices and lower wages to offset their tax burden.[4] Not only does tax shifting lessen the impact of taxes as a possible detriment to new business location but it also minimizes the importance of tax breaks to industrial location decisions.

Federal Tax Deductability Mitigates Impact

The effect of tax differentials among states is lessened to the extent that the federal government allows businesses to deduct state and local taxes.[5] In states with income taxes, state provisions perform the same function—but to a quantitatively smaller extent—for local tax differences.

Firms in higher tax states are able to deduct relatively more state and local taxes from their federal income tax. The result: an overall tax burden—state, local, and federal combined—that may not be very different from firms in states with relatively low taxes. Similarly, in states with income taxes, overall tax burdens among local areas are lessened if firms are able to deduct local tax liabilities on their state income tax returns. Some of the fastest growing states during the 1980's were states with high taxes, e.g., California and Massachusetts.

As long as federal and state tax provisions allow for tax write-offs, the value of tax breaks to firms will be worth less than the tax revenue foregone. That is, a firm gains less than one dollar in overall tax relief for every dollar the state or locality gives up in tax breaks.

Should States Offer Financial Incentives to Lure Industry?

In light of the preponderance of evidence that state tax breaks and other types of financial incentives are insignificant factors in luring industry, does it make sense for states to continue to do so?

To say that tax breaks have little impact on industrial location is not the same as saying they have no impact. Some recent studies have found that these breaks have an effect on certain industries. Quantitatively, however, the effect is not large. Therefore, a state may have to offer tax concessions and other financial inducements that are not too much out of line with neighboring states. But state and local policymakers should recognize that because of the mitigating effect of federal tax deductability, financial concessions need not be large to attract a manufacturing plant to locate or expand in a particular community.

The direct impact of financial "carrots" to lure industry—tax breaks, low interest loans, labor training assistance, etc.—is to raise state government expenditures and lower the growth of tax collections. However, there is an indirect, potentially more significant, impact. A state or locality that successfully attracts new firms and jobs lays the groundwork for more and better public services in the future that may be financed from additional tax revenues which eventually may flow from increased economic activity.

The relative unimportance of state and local tax breaks and financial assistance packages in attracting industry does not mean that state and local governments cannot design an effective industrial development policy. Many important factors in the industrial location decision are directly influenced by state and local spending, taxing, and regulatory policies, for example, transportation, skilled labor, education, recreation, cultural activities, environmental quality, and regulation of businesses. Making communities better places to live and improving the business climate will tend to make a more attractive location for new businesses. However, policymakers should keep in mind that competition among cities and states for industries is sufficiently great to cause the probability of success by any one city or state to be quite small.

Economic Development Efforts, Politics, and the Press

The foregoing as been a summary of the results of studies by economists who specialize in the economics of growth and development. The general consensus is that state financial inducements to attract manufacturing firms probably have only a small effect. However, these studies tend to circulate among professional economists and seldom reach the general public. The public's information tends to come from those state and local officials who have the responsibility for formulating and carrying out economic development policies. When a new industry chooses to locate in their state, they understandably accept credit for creating new jobs. Whether or not their efforts were pivotal to the firm's decision is not always clear, and the new firm is not likely to announce that the inducements that it received made no difference in its location decision.

Thus, public officials receive mandates from their constituencies to promote economic development. They respond by enacting the various policies that have been described. But how successful these policies are is not always clear. The literature that has been surveyed suggests that state financial inducements have had some success, but competition among states and cities tends to eliminate any differential advantage any one of them may have possessed by enacting some tax break or other inducement.

In the final analysis, profit seeking firms tend to locate where profit potential is greatest.

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[1] Donald R. Market, "Employment Patterns in Arkansas: Their Relationship to Per Capita Income and Population in the 1980's," *Arkansas Business and Economic Review*, Vol. 22, No. 3, Fall 1989, pp. 31-35.

[2] R.W. Schmenner, *Making Business Location Decisions*, Englewood Cliffs, N.J.: Prentice Hall, 1982.

[3] Bruce L. Benson and Ronald N. Johnson, "Lagged Impact of State and Local Taxes on Economic Ac-

tivity," *Economic Inquiry*, Vol. XXIV, July, 1986. 389-401.

[4] Michael Wasylenko and Therese McGuire, "Jobs and Taxes: The Effect of Business Climate on State's Employment Growth Rates," *National Tax Journal*, Vol. XXXVIII, No. 4, 1986, 497-511.

[5] Advisory Commission on Intergovernmental Relations, *Regional Growth: Interstate Tax Competition*, Washington, D.C. 1981.

The Arkansas Economy: A Review of 1989

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The mostly complete data for 1989 show that the overall performance of the Arkansas economy was relatively good. The *labor force* grew by 2.4%, but *employment* grew at an even faster rate of 2.9% and the *unemployment rate* fell from 7.7% in 1988 to 7.2% in 1989. However, the state's *unemployment rate* remained significantly higher than the U.S. rate of 5.3%. In January 1990, the state's *unemployment rate* fell to 5.9%, its lowest rate since the beginning of the 1980's. However, it increased to 6.2% in February, and to 6.9% in March.

After declining during the second and third quarters, Arkansas *total personal income* rebounded during the fourth quarter of 1989 making the increase for the year 6.8%, over 1988. When adjusted for inflation this increase was 2.5%. For the U.S. during 1989 *personal income* grew by 8.9%, or 4.6% when adjusted for inflation.

The Arkansas construction industry closed the decade with a strong finish. After four consecutive years of decline, *residential* contracts increased by 10.4% over 1988; *nonresidential* construction contracts increased by 141.7%; and total contracts increased by 58.7%. However, during the first quarter of 1990, all three categories showed declines: *residential* by 5.9%, *nonresidential* by 64.3%, and total contracts by 49.8%.

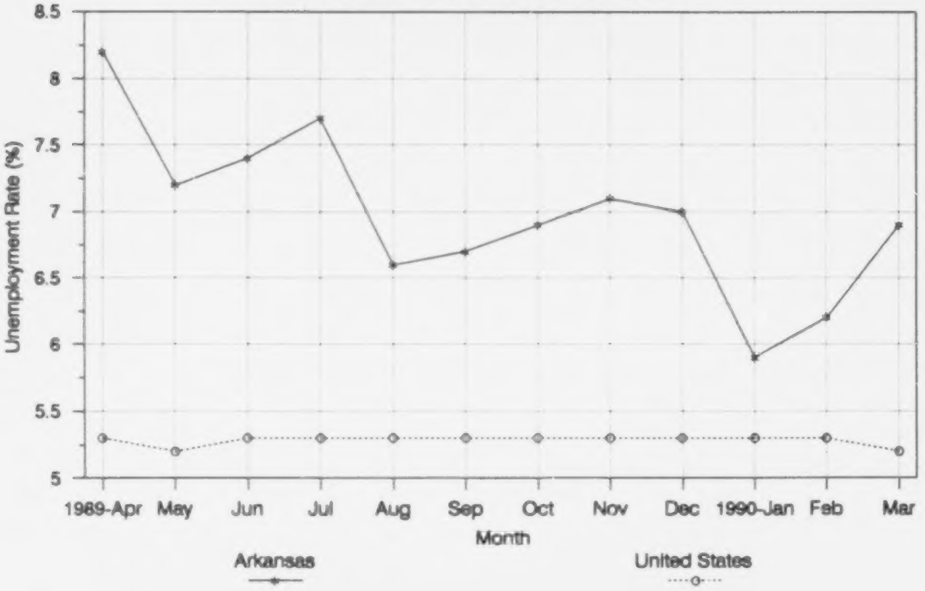
Other 1989 Arkansas indicators were more or less consistent with the performance of the overall state economy, as measured by income and employment. *Value added by manufacture*, adjusted for inflation, increased by 0.7% compared to 3.3% nationally. *Cash receipts from farm marketings* grew by a real rate of 0.6% compared to 5.1% nationally. *Total tonnage* on the McClellan-Kerr Arkansas Navigation System increased by 7.0% over 1988 with outbound traffic showing the largest gain, 24.3%.

Overall, 1989 cannot be considered the best of years nor the worst of years. Perhaps it should be judged as "not bad." In spite of some mid-year weaknesses real *personal income* grew by 2.5%. The *unemployment rate* declined even as the labor force grew; however, the former rate remained about 2 percentage points above the national average. In Arkansas, *construction* had its best year since 1984, but the growth in *value added by manufacture* and in *farm cash receipts* was low.

The economic performance of the state in 1989 was good in some areas, and not so good in others, thus the overall characterization of "not bad." Considered from another perspective, a succession of "not bad" years is not necessarily bad at all.

Unemployment Rates

Arkansas and U.S., seasonally adjusted



Arkansas Labor Force and Employment

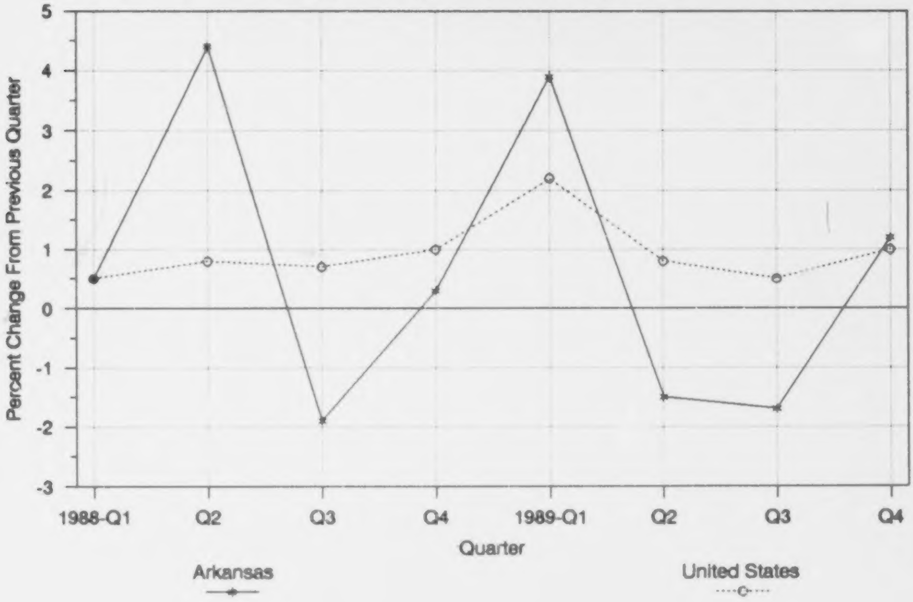
Monthly values seasonally adjusted and annualized (thousands)

Year		Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate Arkansas	Unemployment Rate U.S.
1981		1,032.8	938.6	64.5	209.7	9.1	7.6
1982		1,024.9	924.2	63.7	195.2	9.8	9.7
1983		1,028.4	924.4	62.6	199.6	10.1	9.6
1984		1,041.0	948.2	61.6	210.2	8.9	7.5
1985		1,051.6	960.7	46.2	210.3	8.7	7.2
1986		1,072.8	978.7	45.5	214.0	8.8	7.0
1987		1,088.3	1,000.2	44.8	219.5	8.1	6.2
1988		1,108.8	1,023.8	44.1	226.3	7.7	5.5
1989		1,135.1	1,053.1	43.4	230.0	7.2	5.3
1989	Apr	1,130.4	1,039.0	43.6	230.5	8.2	5.3
	May	1,132.3	1,051.9	43.5	230.3	7.2	5.2
	Jun	1,129.7	1,048.9	43.4	231.5	7.4	5.3
	Jul	1,142.9	1,056.6	43.3	230.2	7.7	5.3
	Aug	1,142.4	1,062.0	43.3	230.2	6.6	5.3
	Sep	1,125.7	1,050.2	43.2	229.8	6.7	5.3
	Oct	1,131.5	1,053.3	43.1	229.4	6.9	5.3
	Nov	1,125.1	1,045.0	43.1	228.9	7.1	5.3
	Dec	1,139.5	1,059.1	43.1	228.8	7.0	5.3
1990	Jan	1,173.7	1,107.9	43.0	230.7	5.9	5.3
	Feb	1,172.4	1,102.9	43.0	230.4	6.2	5.3
	Mar	1,144.5	1,062.5	43.0	229.5	6.9	5.2

Source: U.S. data: *Economic Indicators*. Arkansas data: *Current Employment Developments: Arkansas*, Arkansas Employment Security Division.

Changes in Real Personal Income

Arkansas and U.S., quarterly, seasonally adjusted annual rates



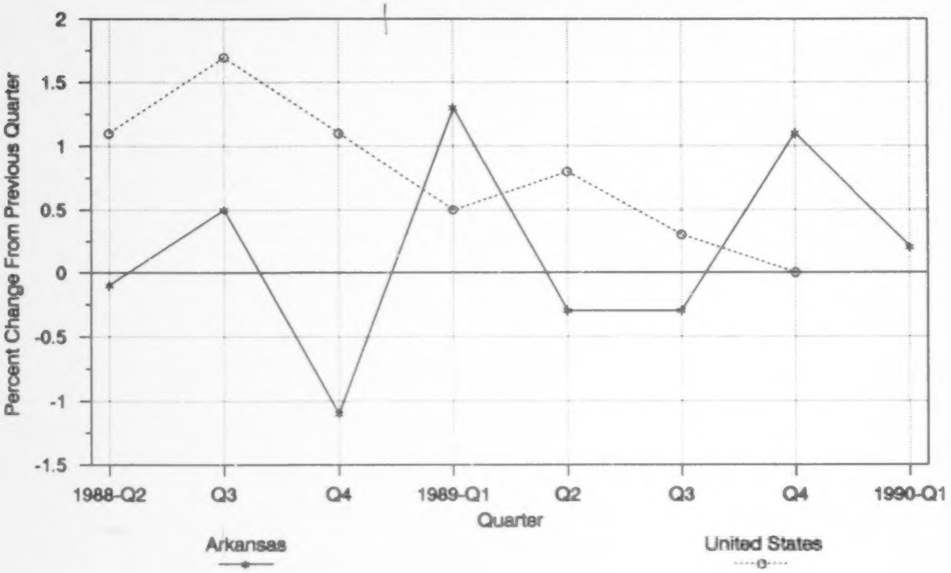
Arkansas Personal Income

Quarterly values seasonally adjusted and annualized (millions of dollars)

Year		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
		Amount	% Change	% Change	Amount	% Change	% Change
1981		19,140	11.9	11.6	20,362	2.1	1.8
1982		19,855	3.7	5.9	19,855	-2.5	-0.4
1983		21,158	6.6	6.3	20,364	2.6	2.3
1984		23,309	10.2	9.5	21,643	6.3	5.7
1985		24,838	6.6	7.0	22,397	3.5	3.9
1986		26,052	4.9	6.0	22,873	2.1	3.2
1987		27,302	4.8	7.1	23,241	1.6	3.9
1988		29,255	7.2	7.6	24,118	3.8	4.2
1989		31,235	6.8	8.9	24,730	2.5	4.6
1988	Q1	28,093	1.0	1.0	23,568	0.5	0.5
	Q2	29,662	5.6	2.0	24,595	4.4	0.8
	Q3	29,415	-0.8	1.8	24,130	-1.9	0.7
	Q4	29,849	1.5	2.1	24,208	0.3	1.0
1989	Q1	31,312	4.9	3.2	25,150	3.9	2.2
	Q2	31,194	-0.4	1.9	24,777	-1.5	0.8
	Q3	30,900	-0.9	1.3	24,350	-1.7	0.5
	Q4	31,532	2.0	1.8	24,654	1.2	1.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis (Regional Economic Information System).

Changes in U.S.Industrial Production and Arkansas Value Added
Quarterly, seasonally adjusted annual rates

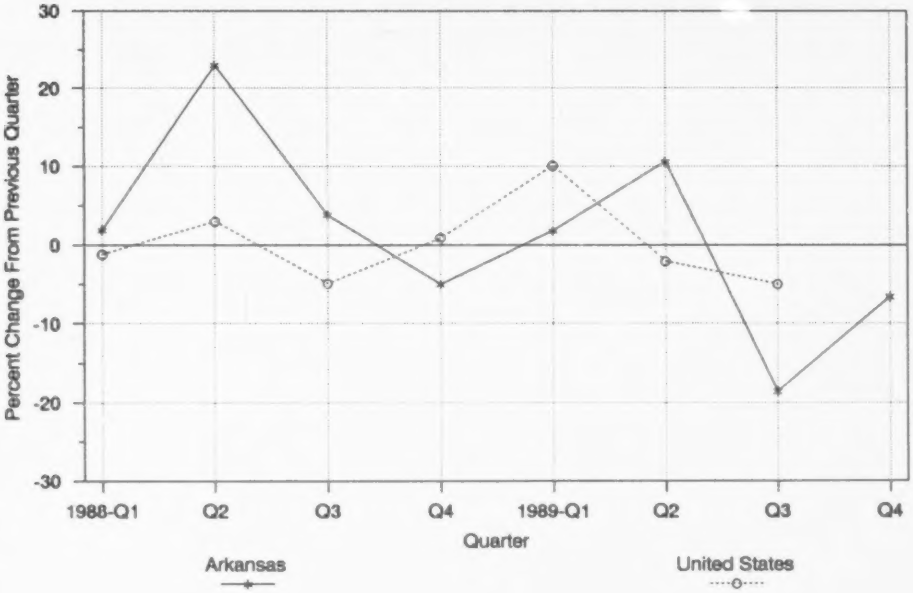


Arkansas Value Added by Manufacture
Quarterly values seasonally adjusted and annualized (millions of dollars)

		In Current $'s		In Constant 1982 $'s		
		Arkansas		Arkansas		U.S.
Year		Amount	% Change	Amount	% Change	% Change
1981		7,436.6	3.6	7,911.3	-5.5	2.2
1982		7,594.5	2.1	7,594.5	-4.0	-7.1
1983		8,238.3	8.5	7,929.0	4.4	5.9
1984		9,006.1	9.3	8,362.2	5.5	11.2
1985		9,331.2	3.6	8,414.1	0.6	1.9
1986		9,723.6	4.2	8,536.9	1.5	1.1
1987		10,390.0	6.9	8,844.9	3.6	3.8
1988		10,901.8	4.9	8,987.5	1.6	5.7
1989		11,428.4	4.8	9,048.6	0.7	3.3
1988	Q2	10,846.3	1.1	8,993.7	-0.1	1.1
	Q3	11,015.2	1.6	9,036.3	0.5	1.7
	Q4	11,017.3	0.0	8,935.4	-1.1	1.1
1989	Q1	11,273.5	2.3	9,055.0	1.3	0.5
	Q2	11,367.7	0.8	9,029.2	-0.3	0.8
	Q3	11,428.4	0.5	9,005.9	-0.3	0.3
	Q4	11,644.1	1.9	9,104.0	1.1	0.0
1990	Q1	11,828.1	1.6	9,119.6	0.2	NA

Sources: Arkansas Value Added by Manufacture: BBER Computation. U.S. Industrial Production: "Production and Business Activity," *Economic Indicators*.

Changes in Real Cash Receipts from Farm Marketings
Arkansas and U.S., quarterly, seasonally adjusted annual rates

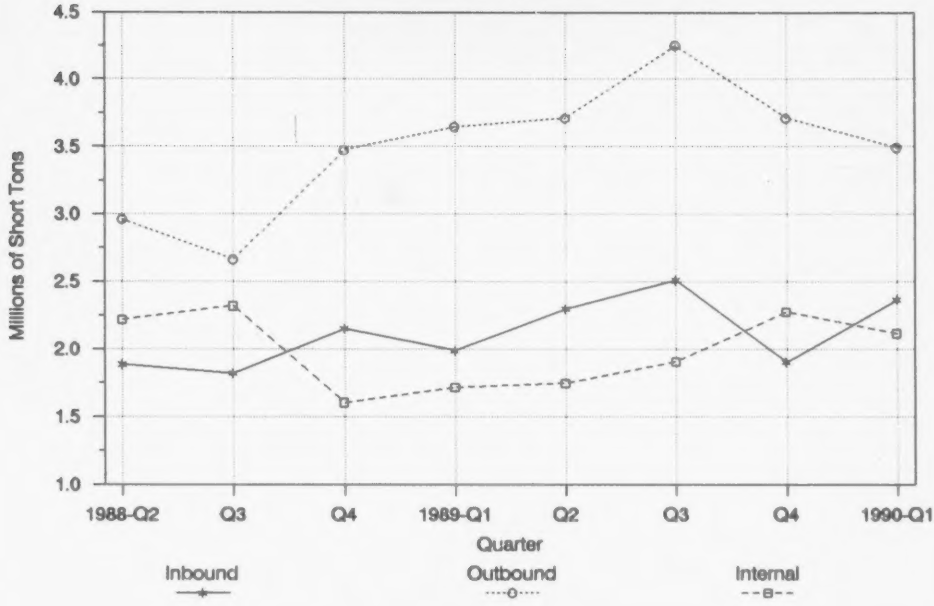


Cash Receipts from Farm Marketings
Quarterly values seasonally adjusted and annualized (millions of dollars)

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1981		3,391.4	9.2	11.5	3,607.9	-0.4	1.6
1982		3,254.0	-4.1	-1.7	3,254.0	-9.8	-7.6
1983		2,834.9	-12.9	-6.5	2,728.5	-16.1	-10.0
1984		3,475.0	22.6	14.5	3,226.5	18.3	10.4
1985		3,290.0	-5.3	-5.0	2,966.6	-8.1	-7.7
1986		3,034.1	-7.8	-3.6	2,663.8	-10.2	-6.1
1987		3,192.0	5.2	7.1	2,717.3	2.0	3.8
1988		3,939.2	23.4	3.5	3,247.5	19.5	0.2
1989		4,126.8	4.8	9.5	3,267.5	0.6	5.1
1988	Q1	3,279.0	2.4	-0.7	2,750.8	1.9	-1.2
	Q2	4,082.0	24.5	4.2	3,384.8	23.0	3.0
	Q3	4,280.8	4.9	-3.8	3,511.7	3.8	-4.9
	Q4	4,115.2	-3.9	2.1	3,337.5	-5.0	0.9
1989	Q1	4,231.5	2.8	11.1	3,398.8	1.8	10.1
	Q2	4,734.1	11.9	-1.0	3,760.2	10.6	-2.1
	Q3	3,884.5	-17.9	-4.2	3,061.1	-18.6	-5.0
	Q4	3,657.3	-5.8	NA	2,859.5	-6.6	NA

Sources: U.S. data: "Farm Income," *Economic Indicators*. Arkansas data: "Monthly Cash Receipts," USDA/ERS/NED.

Changes in Waterborne Freight Traffic
Seasonally adjusted

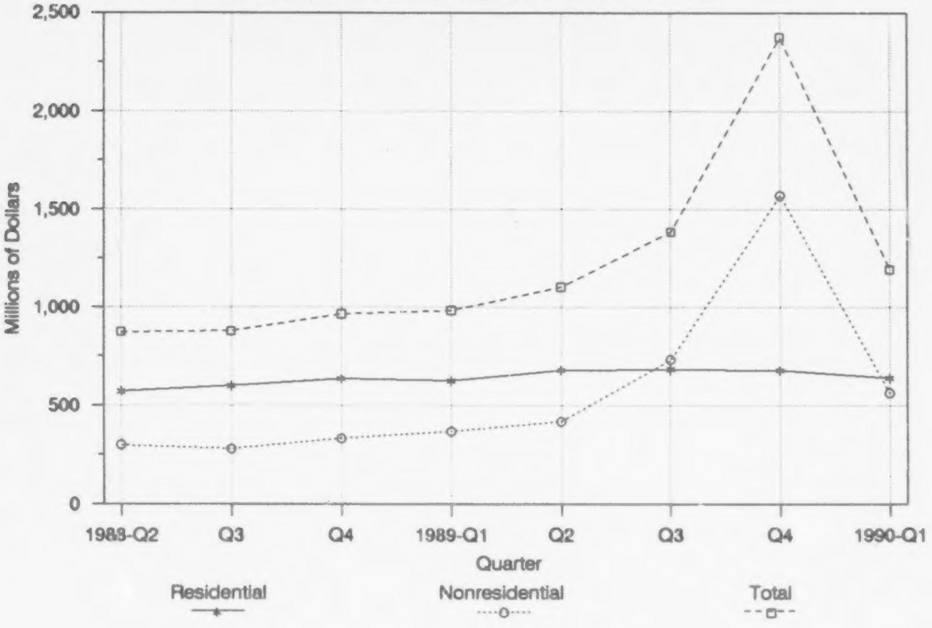


Waterborne Commerce:
McClellan-Kerr Arkansas River Navigation System
Quarterly values seasonally adjusted and annualized (thousands of short tons)

Year		Inbound Total	Inbound % Change	Outbound Total	Outbound % Change	Internal Total	Internal % Change	Total Total	Total % Change
1981		1,563	-3.2	5,712	22.9	1,774	-27.5	9,449	3.3
1982		1,525	-2.4	4,597	-19.5	1,516	-14.6	8,280	-12.4
1983		1,914	25.5	3,896	-15.2	1,910	26.0	8,006	-3.3
1984		2,126	11.1	4,298	10.3	2,453	28.4	9,487	18.5
1985		2,090	-1.7	3,155	-26.6	2,435	-0.7	8,295	-12.6
1986		2,619	25.3	3,405	7.9	3,110	27.7	9,729	17.3
1987		2,129	-18.7	3,427	0.7	2,790	-10.3	8,900	-8.5
1988		2,088	-1.9	3,081	-10.1	2,086	-25.2	7,801	-12.4
1989		2,173	4.1	3,830	24.3	1,910	-8.4	8,348	7.0
1988	Q2	1,885	-24.5	2,960	-8.4	2,217	0.5	7,656	-11.6
	Q3	1,819	-3.5	2,660	-10.1	2,318	4.6	7,318	-4.4
	Q4	2,153	18.4	3,472	30.5	1,603	-30.8	7,570	3.4
1989	Q1	1,987	-7.7	3,647	5.0	1,713	6.8	8,144	7.6
	Q2	2,296	15.5	3,710	1.7	1,746	2.0	8,117	-0.3
	Q3	2,507	9.2	4,254	14.7	1,905	9.1	8,933	10.1
	Q4	1,903	-24.1	3,710	-12.8	2,275	19.4	8,200	-8.2
1990	Q1	2,364	24.2	3,491	-5.9	2,115	-7.1	8,720	6.3

Source: Corps of Engineers Monthly Report — Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System, New Orleans District.

Arkansas Construction Contracts
Quarterly, seasonally adjusted annual rates



Arkansas Construction Contracts
Quarterly values seasonally adjusted and annualized (millions of dollars)

Year		Residential		Nonresidential		Total	
		Contracts	% Change	Contracts	% Change	Contracts	% Change
1981		632.8	-1.3	300.5	-15.5	935.8	-5.8
1982		647.8	2.4	280.4	-6.7	927.6	-0.9
1983		904.7	39.6	366.6	30.7	1,273.5	37.3
1984		917.5	1.4	466.5	27.3	1,387.4	8.9
1985		764.0	-16.7	454.7	-2.5	1,223.1	-11.8
1986		740.7	-3.1	415.8	-8.5	1,153.6	-5.7
1987		646.9	-12.7	407.8	-1.9	1,050.1	-9.0
1988		601.2	-7.1	318.8	-21.8	919.9	-12.4
1989		664.1	10.5	770.6	141.7	1,460.1	58.7
1988	Q2	567.8	-6.6	298.1	-18.9	872.2	-9.9
	Q3	596.0	5.0	278.6	-6.5	877.1	0.6
	Q4	633.1	6.2	330.9	18.8	963.0	9.8
1989	Q1	621.8	-1.8	366.9	10.9	980.4	1.8
	Q2	677.2	8.9	416.3	13.5	1,101.3	12.3
	Q3	681.0	0.6	730.4	75.4	1,382.9	25.6
	Q4	676.5	-0.7	1,568.7	114.8	2,375.7	71.8
1990	Q1	636.5	-5.9	560.0	-64.3	1,191.5	-49.8

Source: *F. W. DODGE Construction Potentials*, McGraw-Hill.

ARKANSAS LABOR FORCE ESTIMATES
March 1989, Not Seasonally Adjusted

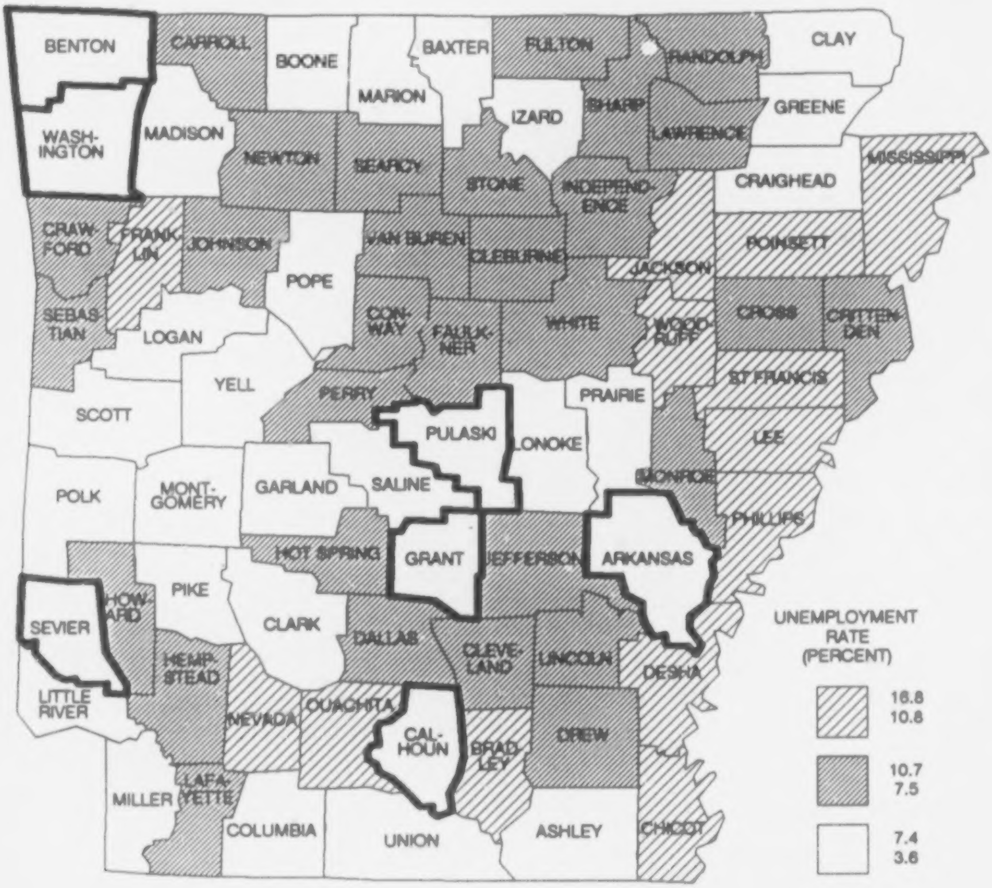
Area	Civilian Labor Force	Total Employment	Unemployment Rate
UNITED STATES	123,790,000	117,093,000	5.4
STATE OF ARKANSAS	1,131,300	1,048,200	7.3
Fayetteville-Springdale MSA	63,825	61,500	3.6
Fort Smith MSA	92,950	85,725	7.8
Little Rock-North Little Rock MSA	269,100	253,200	5.9
Pine Bluff MSA	37,250	34,250	8.1

County	Civilian Labor Force	Total Employment	Unemployment Rate	County	Civilian Labor Force	Total Employment	Unemployment Rate
Arkansas	10,000	9,525	4.8	Lee	4,450	3,750	15.7
Ashley	11,000	10,300	6.4	Lincoln	4,675	4,225	9.6
Baxter	11,250	10,450	7.1	Little River	5,950	5,600	5.9
Benton	51,400	49,400	3.9	Logan	9,825	9,150	6.9
Boone	15,250	14,400	5.6	Lonoke	18,125	16,900	6.8
Bradley	5,275	4,650	11.8	Madison	5,200	4,875	6.3
Calhoun	4,950	4,725	4.5	Marion	6,150	5,725	6.9
Carroll	9,850	8,900	9.6	Miller	18,250	17,000	6.8
Chicot	5,925	5,150	13.1	Mississippi	21,625	18,750	13.3
Clark	9,700	9,125	5.9	Monroe	4,925	4,550	7.6
Clay	9,175	8,550	6.8	Montgomery	2,850	2,675	6.1
Cleburne	8,750	8,050	8.0	Nevada	4,000	3,500	12.5
Cleveland	3,250	3,000	7.7	Newton	3,225	2,925	9.3
Columbia	12,375	11,650	5.9	Ouachita	13,150	11,650	11.4
Conway	7,875	7,225	8.3	Perry	4,350	3,950	9.2
Craighead	37,050	35,000	5.5	Phillips	10,025	8,750	12.7
Crawford	21,750	19,900	8.5	Pike	4,725	4,400	6.9
Crittenden	22,700	20,550	9.5	Poinsett	10,725	8,925	16.8
Cross	8,425	7,625	9.5	Polk	7,650	7,225	5.6
Dallas	4,400	4,050	8.0	Pope	24,350	22,825	6.3
Desha	7,300	6,375	12.7	Prairie	5,100	4,750	6.9
Drew	8,250	7,475	9.4	Pulaski	191,275	181,050	5.3
Faulkner	28,925	26,225	9.3	Randolph	7,125	6,400	10.2
Franklin	6,225	5,350	14.1	St. Francis	10,175	8,575	15.7
Fulton	3,925	3,625	7.6	Saline	30,775	29,025	5.7
Garland	32,350	30,250	6.5	Scott	5,475	5,100	6.8
Grant	7,025	6,650	5.3	Searcy	3,275	3,025	7.6
Greene	15,000	13,975	6.8	Sebastian	54,075	49,925	7.7
Hempstead	10,250	9,200	10.2	Sevier	7,175	6,900	3.8
Hot Spring	11,125	9,950	10.6	Sharp	6,250	5,725	8.4
Howard	6,450	5,925	8.1	Stone	4,325	3,950	8.7
Independence	15,675	14,250	9.1	Union	20,725	19,200	7.4
Izard	5,400	5,075	6.0	Van Buren	6,025	5,400	10.4
Jackson	8,425	7,325	13.1	Washington	63,825	61,500	3.6
Jefferson	37,250	34,250	8.1	White	25,925	23,475	9.5
Johnson	7,700	6,975	9.4	Woodruff	3,900	3,350	14.1
Lafayette	3,175	2,900	8.7	Yell	8,700	8,225	5.5
Lawrence	8,150	7,275	10.7				

Source: Labor Market Information for Arkansas Counties, Arkansas Employment Security Division, April 1990.

Labor Force Estimates
March 1990

In March, Arkansas' Civilian Labor Force shrank by 21,000 to total 1,131,300. Total Employment in the same period fell by 22,000 to total 1,048,200. Accordingly, Unemployment rose 1,000 to total 83,100. Of the 75 counties, Washington had the lowest unemployment rate, 3.6 percent, and Poinsett had the highest rate, 16.8 percent; 31 counties were equal to or below the state's 7.3 percent while 18 had rates above 10 percent. Of the MSAs, Fayetteville-Springdale had the lowest unemployment rate, 3.6 percent; and Pine Bluff had the highest, 8.1 percent. The unemployment rates for the Little Rock-North Little Rock and the Fort Smith MSAs were 5.9 and 7.8 percent, respectively.


BENTON
CARROLL
BOONE
BAXTER
FULTON
RANDOLPH
CLAY
MARION
IZARD
SHARP
GREENE
WASH-INGTON
MADISON
NEWTON
SEARCY
STONE
LAWRENCE
INDEPEND-ENCE
CRAIGHEAD
MISSISSIPPI
CRAW-FORD
FRANK-LIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBAS-TIAN
LOGAN
CON-WAY
FAULK-NER
WHITE
WOOD-RUFF
CROSS
CRITTEN-DEN
YELL
PERRY
PRAIRIE
ST FRANCIS
SCOTT
PULASKI
LONOKE
LEE
POLK
MONT-GOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
HOW-ARD
PIKE
CLARK
DALLAS
CLEVE-LAND
LINCOLN
DESHA
LITTLE RIVER
HEMP-STEAD
NEVADA
OUACHITA
CAL-HOUN
BRAD-LEY
DREW
MILLER
LAFA-YETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE (PERCENT)
16.8 10.8
10.7 7.5
7.4 3.6

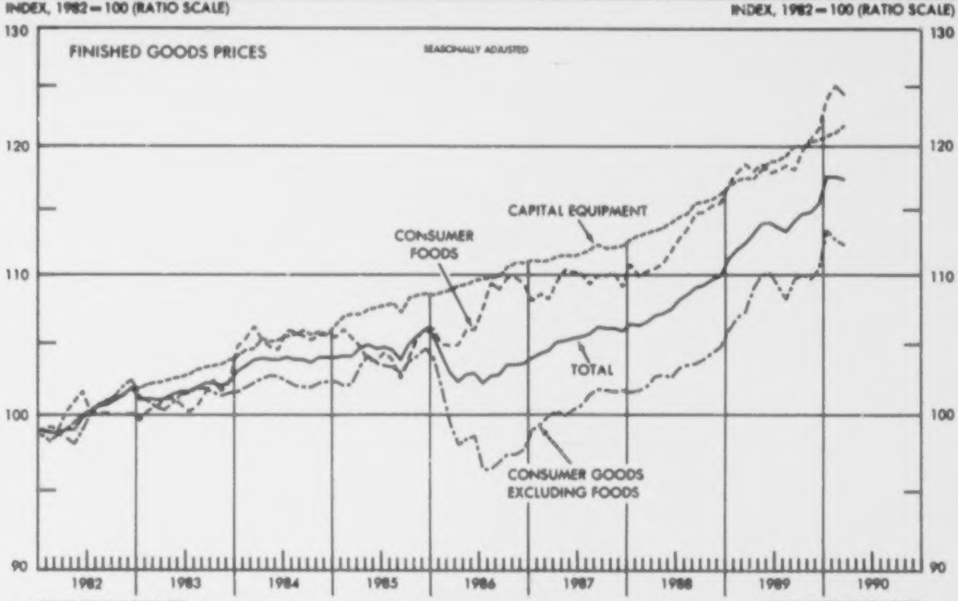
▬ Boundary lines of counties having an unemployment rate less than or equal to the national average of 5.4 percent.

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

PRICES

PRODUCER PRICES

In March, the producer price index for all finished goods fell 0.2 percent. Prices of finished consumer foods fell 0.6 percent, while prices of other finished consumer goods fell 0.4 percent. Capital equipment prices rose 0.4 percent.



SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982 = 100; monthly data seasonally adjusted]

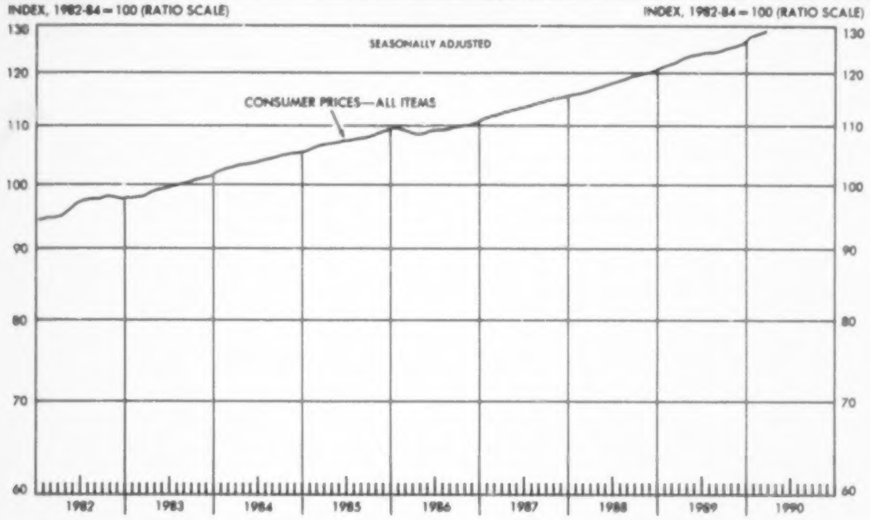
Period	Finished goods								Intermediate materials			Crude materials		
	Total finished goods	Consumer foods	Finished goods excluding consumer foods					Total finished consumer goods	Total	Foods and feeds [1]	Other	Total	Foodstuffs and feedstuffs	Other
			Total	Consumer goods			Capital equipment							
				Total	Durable	Nondurable								
1980	88.0	92.4	86.7	87.1	91.0	85.1	85.8	88.6	90.3	105.5	89.4	95.3	104.6	84.6
1981	96.1	97.8	95.6	96.1	96.4	95.8	94.6	96.6	98.6	104.6	98.2	103.0	103.9	101.8
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	101.6	101.0	101.8	101.2	102.8	100.5	102.8	101.3	100.6	103.6	100.5	101.3	101.8	100.7
1984	103.7	105.4	103.2	102.2	104.5	101.1	105.2	103.3	103.1	105.7	103.0	103.5	104.7	102.2
1985	104.7	104.6	104.6	103.3	106.5	101.7	107.5	103.8	102.7	97.3	103.0	95.8	94.8	96.9
1986	103.2	107.3	101.9	98.5	108.9	93.3	109.7	101.4	99.1	96.2	99.3	87.7	93.2	81.6
1987	105.4	109.5	104.0	100.7	111.5	94.0	111.7	103.6	101.5	99.2	101.7	93.7	96.2	87.9
1988	108.0	112.6	106.5	103.1	113.8	97.3	114.3	106.2	107.1	109.5	106.9	96.0	106.1	85.5
1989 p	113.5	118.7	111.8	108.9	117.6	103.8	118.7	112.1	112.0	113.8	111.9	103.0	111.1	93.4
1989: Mar	112.4	118.6	110.4	107.3	116.8	102.0	117.5	111.0	111.9	116.7	111.6	103.5	114.8	92.0
Apr	113.1	118.0	111.4	109.0	116.4	104.4	117.4	111.9	112.5	115.4	112.3	104.5	112.1	95.1
May	113.9	118.6	112.4	110.0	117.2	105.5	118.1	112.9	112.6	113.8	112.5	104.5	110.8	95.9
June	114.0	117.9	112.7	110.2	117.7	105.6	118.8	112.8	112.3	111.6	112.4	103.3	109.6	94.7
July	113.6	118.1	112.1	109.2	117.4	104.3	118.9	112.1	112.1	113.2	112.0	103.5	108.9	95.5
Aug	113.3	118.5	111.5	108.2	117.8	102.7	119.3	111.6	111.8	112.8	111.8	101.1	109.7	91.3
Sept	114.1	118.1	112.8	109.7	118.7	104.5	120.1	112.5	112.2	112.7	112.2	102.3	109.0	93.6
Oct	114.7	119.7	113.1	110.1	118.6	105.1	120.0	113.3	112.4	112.5	112.4	102.6	109.0	94.1
Nov r	114.8	120.7	112.9	109.7	118.7	104.4	120.4	113.3	112.2	113.4	112.1	103.2	111.4	93.5
Dec	115.5	121.5	113.5	110.5	119.2	105.4	120.6	114.1	112.3	113.0	112.3	104.6	113.7	94.3
1990: Jan	117.6	124.0	115.5	113.4	118.9	109.5	120.9	116.9	113.6	113.3	113.6	107.1	114.8	97.6
Feb	117.6	125.1	115.2	112.7	118.9	108.5	121.2	116.7	112.8	112.3	112.8	107.5	115.9	97.5
Mar	117.4	124.4	115.1	112.3	119.4	107.8	121.7	116.3	112.8	112.8	112.8	106.0	116.3	94.9

[1] Intermediate materials for food manufacturing and feeds.

Source: Department of Labor, Bureau of Labor Statistics.

CONSUMER PRICES—ALL URBAN CONSUMERS

In March, the consumer price index for all urban consumers rose 0.5 percent, seasonally adjusted and not seasonally adjusted. The index was 5.2 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982-84 = 100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1]		Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, shelter, and energy
					Shelter											
	Not seasonally adjusted (NSA)	Seasonally adjusted		Total [1]	Total	Renters' costs (Dec. 1982 = 100)	Homeowners' costs (Dec. 1982 = 100)	Maintenance and repairs (NSA)	Fuel and other utilities		Total [1]	New cars	Motor fuel			
Rel. imp. [3]	100.0	....	16.3	42.0	27.9	7.9	19.8	0.2	7.5	6.1	17.1	4.2	3.2	6.2	7.4	48.4
1980	82.4	....	86.8	81.1	81.0	....	....	82.4	75.4	90.9	83.1	88.4	97.4	74.9	86.0	80.6
1981	90.9	....	93.6	90.4	90.5	....	....	90.7	86.4	95.3	93.2	93.7	108.5	82.9	97.7	88.3
1982	96.5	....	97.4	96.9	96.9	....	....	96.4	94.9	97.8	97.0	97.4	102.8	92.5	99.2	95.1
1983	99.6	....	99.4	99.5	99.1	103.0	102.5	99.9	100.2	100.2	99.3	99.9	99.4	100.6	99.9	100.0
1984	103.9	....	103.2	103.6	104.0	108.6	107.3	103.7	104.8	102.1	103.7	102.8	97.9	106.8	100.9	105.0
1985	107.6	....	105.6	107.7	109.8	115.4	113.1	106.5	106.5	105.0	106.4	106.1	98.7	113.5	101.6	109.0
1986	109.6	....	109.0	110.9	115.8	121.9	119.4	107.9	104.1	105.9	102.3	110.6	77.1	122.0	88.2	112.7
1987	113.6	....	113.5	114.2	121.3	128.1	124.8	111.8	103.0	110.6	105.4	114.6	80.2	130.1	88.6	117.0
1988	118.3	....	118.2	118.5	127.1	133.6	131.1	114.7	104.4	115.4	108.7	116.9	80.9	138.6	89.3	121.9
1989	124.0	....	125.1	123.0	132.8	138.9	137.3	118.0	107.8	118.6	114.1	119.2	88.5	149.3	94.3	127.3
1989:																
Mar	122.3	122.5	123.5	121.6	131.0	137.6	135.2	117.1	106.9	118.8	112.6	119.5	84.1	145.9	91.6	126.2
Apr	123.1	123.3	124.2	121.8	131.1	137.1	135.6	117.3	107.3	119.3	115.1	119.5	93.4	146.7	96.2	126.6
May	123.8	123.8	124.9	122.2	131.7	137.4	136.3	117.4	107.5	119.5	115.8	119.5	95.3	147.6	97.0	127.1
June	124.1	124.1	125.2	122.6	132.3	138.0	136.9	118.3	107.3	118.9	115.7	119.3	94.6	148.7	96.4	127.4
July	124.4	124.5	125.6	123.3	133.2	139.6	137.6	118.4	107.8	118.3	115.3	118.8	92.9	149.6	95.9	127.7
Aug	124.6	124.5	125.9	123.5	133.5	139.1	138.2	118.5	107.8	116.9	114.2	118.5	88.4	150.8	93.8	127.8
Sept	125.0	124.8	126.3	123.7	133.7	138.7	138.7	118.6	108.0	118.6	113.9	118.1	87.1	151.9	93.2	128.3
Oct	125.6	125.4	126.8	124.2	134.4	139.8	139.4	118.6	108.1	119.4	114.5	118.8	88.4	153.0	94.1	128.8
Nov	125.9	125.8	127.4	124.7	135.0	140.5	140.0	119.3	108.7	119.4	114.6	119.8	86.8	154.2	93.8	129.3
Dec	126.1	126.3	128.0	125.2	135.6	141.0	140.6	119.5	109.4	119.0	115.0	120.8	86.3	155.1	94.1	129.7
1990:																
Jan	127.4	127.7	130.5	126.1	136.3	142.3	141.1	120.4	111.6	119.0	117.4	121.6	93.4	156.1	98.9	130.4
Feb	128.0	128.3	131.1	126.3	136.6	143.4	141.0	120.8	110.9	122.9	117.7	121.4	93.6	157.3	98.2	131.5
Mar	128.7	128.9	131.5	126.9	137.6	143.8	142.4	121.2	111.0	124.9	117.6	121.2	92.2	158.5	97.4	132.2

[1] Includes items not shown separately.

[2] Household fuels—gas (piped), electricity, fuel oil, etc.—and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1989.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Data beginning 1987 and 1988 calculated on a revised basis.

Source: Department of Labor, Bureau of Labor Statistics.

The Mineral Industry of Arkansas in 1989

Nonfuel mineral production in Arkansas in 1989 had an estimated value of $342 million. This was a $35 million increase over the value in 1988. The State continued as a leader in abrasives, bauxite, and bromine production. Arkansas ranked 28th in total mineral value, 20th in industrial mineral production, and 21st in metals nationwide.

During 1989 the controversy over the commercial mining of diamonds at the Crater of Diamonds State Park continued, and the U.S. Forest Service conducted the first competitive bid for quartz crystal mining in the Ouachita National Forest. The Howard County gypsum mine was sold and the Aluminum Co. of America restarted a digester unit at its Benton plant.

Employment

Arkansas's mining sector experienced a 2% loss in jobs from 1980 to 1988, the last year for which data were available. Much

Table 1

Nonfuel Mineral Production in Arkansas[1]

Mineral		1988		1989[p]	
		Quantity	Value (thousands)	Quantity	Value (thousands)
Abrasives[2]	short tons	1,235	$429	NA	NA
Clays	thousand short tons	931	$15,376	1,154	$8,531
Gem stones		NA	2,300	NA	2,750
Sand and gravel:					
Construction	thousand short tons	7,722	26,201	7,300	24,800
Industrial	do	669	6,784	555	5.500
Stone:					
Crushed	do	[e]17,000	[e]70,100	18,000	80,000
Dimension	short tons	[e]10,541	[e]629	10,541	629
Combined value of bauxite bromine[e], cement gypsum, lime, talc and pyrophyllite, tripoli (1987-88)		XX	184,970	XX	219,794
Total		XX	306,789	XX	342,104

[e] Estimated. [p] Preliminary. NA-Not available. XX-Not applicable.

[1] Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

[2] Grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles

of the loss was due to the inclusion of oil and gas exploration personnel in the mining sector.

Environment

Aluminum Co. of America's (Alcoa) plant at Bauxite and U.S. Vanadium Corp.'s Hot Springs plant were noted as polluters by the Environmental Protection Agency (EPA). According to EPA records, the Alcoa plant emitted more than 106 million pounds of aluminum oxide, and the Vanadium Corp. plant emitted 3.4 million pounds of ammonium sulfate. Alcoa processed between 150,000 and 200,000 tons of spent pot linings from the aluminum-making process at its plant in Bauxite. After treatment in a kiln the residue was buried.

Legislation and Government Programs

At yearend the Arkansas Parks, Recreation and Travel Commission authorized four companies to begin mining tests for diamonds in Crater of Diamonds State Park. The firms involved in the exploration project are Arkansas Diamond Development, Capricorn Diamonds Pty. Ltd., Continental Diamonds Inc., and Kennecott Exploration Co. Test drilling is scheduled for 1990 to determine if full-scale mining in the State Park is feasible. The Sierra Club has threatened to sue to halt the work.

The Federal Government granted $120,000 to the University of Arkansas to continue research on the recovery of petroleum from tar sands, and $300,000 to the Plant Materials Center at Booneville to continue research on revegetation of abandoned mine lands throughout northwest Arkansas.

The U.S. Forest Service held the first competitive bid in July for property for quartz crystal mining in the Ouachita National Forest.

Review by Nonfuel Mineral Communities

Crushed Stone continued as the leading mineral commodity produced in Arkansas in terms of value, accounting for approximately 20% of the State's total mineral value. Construction **sand and gravel** and **clays** ranked second and third in value. The three construction mineral commodities historically have accounted for approximately one-third of Arkansas mineral value, illustrating the dependence of the mineral industry on the health of the construction industry.

During the year, the Weyerhaeuser Timber Co. **gypsum** mine and wallboard plant near Nashville were sold to Boral Industries Inc. The Howard County mine is the third largest in the country.

Metals were also in the news in 1989. Alcoa announced that it would restart the digester unit at its plant near Benton. The unit was closed in the mid-1980's because of a drop in **aluminum** prices. The company also announced that its **bauxite** mines in Saline County would be depleted by late 1990. Approximately 200 workers will be affected.

Nucor-Yamato Steel Co. completed work on a plasma-torch electric furnace dust-processing facility at its Blytheville plant. The furnace dust contains **zinc**, listed as a hazardous material by the EPA; and plasma technology is a cost effective method of dust disposal.

U.S. Vanadium Corp., a subsidiary of Strategic Minerals Corp., operated the nation's only **vanadium** mill in the Hot Springs area. The mill resumed operations in 1988 after a lengthy closure.

Source: Adapted from *Mineral Industry Surveys*, U.S. Bureau of Mines, U.S. Department of Interior Annual, Preliminary Report, 1990.

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Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

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The Relationship of Type of Audit Opinion to Governmental Bond Ratings

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Introduction

In its 1979 report on the City of New York financial crisis, the Securities and Exchange Commission indicated that the most critical deficiency in existing municipal securities practices is in the area of municipal accounting and financial reporting.[1] Since the Securities and Exchange report much effort has been expended to improve the reporting framework for state and local governmental units so that accounting information is more timely, reliable and useful to financial statement users. The American Institute of Certified Public Accountants (AICPA), the National Council on Governmental Accounting (NCGA) and most recently the Governmental Accounting Standards Board (GASB) were responsible for that effort.

Bond rating agencies, such as Moody's and Standard and Poor's, are primary users of state and local governmental unit financial statements. The importance of the bond ratings by these rating agencies can not be overestimated. Goodman indicates that an increased bond rating increases the value of the municipal bond and a decreased rating decreases it.[2] Peterson notes that several empirical studies have found that bond ratings are the best explanation of interest rates on municipal bonds once the general level of interest rates and the maturity value of the bond issue are held constant.[3] In addition Wallace found that the bond rating is significantly associated with the net interest cost of a bond issue.[4]

Given the importance of bond ratings, it becomes imperative to examine what variables are critical to the decision process of municipal credit analysts. The purpose of this study is to investigate the relationship between bond ratings and the auditor's report (one of those critical variables).

There is support for assuming that the auditor's report is a critical variable in the rating process. Standard and Poor's indicated that financial statements which are audited and contain an opinion from an independent Certified Public Accountant are an integral part of the municipal bond rating process.[5] In addition, empirical research has found that the type of audit report was associated with municipal bond ratings.[6]

Literature Review

Previous research involving the municipal bond rating process has led to the conclusion that there are various judgmental factors that go into the rating process but cannot be captured by theoretical models. Nevertheless, attempts continue to be made to understand the extent to which accounting and auditing practices of state and local governmental units explain the bond rating assigned to a particular bond issue. Wallace investigated the impact of selected financial reporting practices and the type of audit opinion upon municipal interest cost and bond rating.[7] Through means of a survey, Wallace found that municipal market participants perceive governmental units to have lower interest costs and higher bond ratings when they are audited and receive an unqualified auditor's report.

As an extension of her prior research, Wallace studied the association between municipal market measures and selected financial reporting practices.[8] Wallace collected data on all general obligation municipal bonds and utility revenue bonds issued in Florida for 1974 (23 issues), 1975 (34 issues) and 1976 (51 issues). An analysis of the association between type of audit report and bond rating revealed that, in general, an unqualified audit report was associated with a higher bond rating than a qualified audit report. However, once a municipal issue was rated Aa or below, it appeared that the type of auditor's opinion had no significant relation to bond rating.

As a replication and expansion of Wallace's study, Wilson and Howard gathered additional evidence on the association between municipal market measures and selected financial reporting practices by utilizing a national sample of 253 bond issues.[9] Unlike Wallace who found the type of audit opinion was significantly associated with bond ratings, Wilson and Howard initially found no significance and even noted an inverse relationship between type of audit opinion and bond ratings for cities included in their study. Upon further examination of their data and results of studies such as Haseman and Straus and Ernst and Whinney, the authors concluded that consistency and general fixed asset group qualifications occur so frequently in the auditor's reports for governmental units that the rating agencies may tend to disregard these types of qualifications.[10] Additional analysis found that the type of audit opinion was significantly associated with bond rating when these types of qualifications were considered the same as an unqualified audit report.

Baskin examined the information content of the audit report as perceived by municipal analysts.[11] Through use of a mail survey Baskin had professional municipal bond analysts evaluate a hypothetical case and make a creditworthiness decision based on a bond rating scale which was similar to the rating system employed by the bond rating agencies. Six cases were utilized and each analyst received only one case. The two characteristics which were manipulated from case to case were audit status (unaudited, audited by a state auditor, and audited by a Big 8 firm[12]) and audit report opinion (qualified and unqualified). The results of this study indicated that local governmental units which are audited by a Big 8 accounting firm and receive an unqualified opinion are associated with a higher bond rating.

Purpose of Study

In her 1984 paper, Wallace indicated that research investigating the effects of types of audit opinions on governmental bond ratings has shown that there is a correlation between unqualified auditor's reports and higher bond ratings.[13] Wallace suggests that this research may be outdated due to a reported increase in the issuance of qualified opinions by auditors whose exposure to litigation has increased.

Another reason (not suggested by Wallace) to suspect that the relationship between auditors' opinions and bond ratings may have changed is that compliance with GASB pronouncements has made it necessary for the AICPA State and Local Government Committee to issue a 1986 revision of its Industry Audit Guide: *Audits of State and Local Government Units*. The revised Audit Guide illustrates auditor's reports to be issued under various circumstances which were not considered when previous research studies on the relationship between types of audit opinions and bond ratings were conducted.

For example, by comparing the sample auditor's reports presented in the 1986 revised Industry Audit Guide with sample auditor's reports presented in the 1974 Guide, it becomes apparent that GASB statements have made it necessary for auditors to consider such issues as: 1) are all component units of the reporting entity included in the financial statements, 2) does the governmental unit have the ability to meet its debts as they come due, and 3) under what conditions should reference be made to the audit of part or all of a fund type by another auditor. Although these issues have been prevalent in the private sector for sometime, the governmental sector has found it necessary to confront these issues only in recent years.

The purpose of this research is to determine whether the findings of past research are consistent with the new developments which have occurred in the area of governmental accounting and financial reporting. More specifically, the research questions addressed by this study are:

1. Are unqualified audit opinions associated with higher bond ratings? In other words, does the ordering of audit opinions correspond to the ordering of bond ratings?
2. If there is an association between type of audit opinion and bond rating, is this association consistent with prior research findings?

Research Design

Data and Sample Selection

Annual financial reports for the local governmental units employed in this study were obtained from two sources. Thirty-seven annual reports were obtained as a result of mailing letters to ninety-seven randomly selected governmental units listed in the 1982 *Fiscal Almanac*.[14] The remaining forty-nine annual reports were obtained from a "stockpile" of annual reports. Annual reports were selected from this "stockpile" for use in this study provided that their fiscal year-end was after June 30, 1984. This requirement was imposed in order to reduce the variation in fiscal years and help achieve greater comparability between those reports and the annual reports which were randomly selected.

Overall, eighty-six annual reports whose fiscal years ended between August 31, 1984 and June 30, 1986 were initially included. An analysis of the auditor's reports, however, disclosed that five annual reports were not audited and were excluded from the study. Consequently, eighty-one governmental units from thirty-seven different states were analyzed.

The bond ratings for each of the eighty-one local governmental units were obtained from *Moody's Bond Record* for the period which was subsequent to the fiscal year end covered by the auditor's report.[15] For example, if the auditor's report was applicable to a December 31, 1985 fiscal year-end then the bond rating in effect as of November 1986 was utilized. General obligation bond ratings for five out of the eighty-one governments included were not available.

Types of Audit Opinions

From a broad perspective the auditor's report can be viewed as a signal to users that the financial statements have been audited. More specifically, the type of audit opinion rendered provides users with a grade that can be used as a measure of the degree of correspondence between the financial statements and the activities of the company being audited, based on generally accepted accounting principles.

Anderson, Giese and Booker indicate that the literature on distinctions between types of opinions is based on the assumption that financial statement users are able to distinguish between different grades of opinions.[16] As a rough illustration as to how users may rank different types of audit opinions from best to worst Anderson, Giese and Booker suggest the following continuum: 1) the clean opinion, 2) the opinion with the scope qualification, 3) the "except for" opinion, 4) the "subject to" opinion, 5) the piecemeal opinion, 6) the disclaimer, and 7) the adverse opinion.

While acknowledging that there is some concern relating to the scale used for measuring types of opinion, Wallace indicated that it very likely approached an ordinal level of measurement.[17] In her study Wallace used the following ranking of types of opinions, from best to worst: 1) clean opinion, 2) consistency qualification only, 3) depreciation qualification, 4) litigation qualification, 5) narrowing of scope, and 6) narrowing of opinion. It is important to note that both narrowing of scope and narrowing of opinion relate to "except for" opinions. That is, narrowing of scope pertains to circumstances under which certain audit procedures were not performed; while narrowing of opinion pertains to situations where the auditor did not audit certain funds.

The ranking of types of audit opinions employed by Wallace was modified for use in this study. Modifications were necessitated by two important considerations. First, Wallace's study was performed using audit reports of local governmental units in the State of Florida. It appears that depreciation qualification and narrowing of scope opinion types were more common during the time period in which she conducted her study and among the local governmental units included in her study.

The second reason for modification is based on guidance provided by the AICPA State and Local Government Committee in its Industry Audit Guide: *Audits of State and Local Governmental Units* to auditors with respect to reporting when other auditors have audited parts of the financial statements.[18] Opinions which refer to the work of other auditors have become much more prevalent than when Wallace conducted her study due to the issuance by the National Council on Governmental Accounting (NCGA) of Statement 3 *Defining the Government Reporting Entity* and Statement 7 *Financial Reporting for Component Units within the Governmental Entity* (NCGA statements have subsequently been adopted by the GASB).[19] These statements require auditors to determine what constitutes the financial reporting entity of a governmental unit and how included component units should be reported. The 1986 Industry Audit Guide highlights the importance of these NCGA pronouncements by stating that prior to these pronouncements "significant activities which were controlled by the reporting entity were frequently excluded from the entity's general purpose financial statements."

In view of the factors discussed above the following types of opinions in rank order, best to worse, were employed in this study: 1) unqualified (clean) opinion, 2) unqualified opinion with reference to audit by another auditor, 3) consistency qualification, 4) consistency qualification and reference to audit by another auditor, 5) qualified "subject to" opinion, 6) qualified "except for" opinion, 7) qualified "except for" opinion and reference to audit by other auditor, and 8) qualified "except for" opinion and consistency qualification. For the eighty-one local government units included in this study the types of audit opinions were distributed as follows:

Unqualified (clean) opinion	34
Unqualified opinion with reference to audit by another auditor	13
Consistency qualification only	13
Consistency qualification and reference to audit by another auditor	7
Qualified "subject to" opinion	3
Qualified "except for" opinion	4
Qualified "except for" opinion and reference to audit by another auditor	5
Qualified "except for" opinion and consistency qualification	2

Although reference by the principal auditor to the work of another auditor is not a qualification of opinion there is support for ranking this type of opinion below an unqualified (clean) opinion. The *Commission on Auditors Responsibilities* contained criticism of the practice of referring to other auditors on the grounds that it confuses users about the level of assurance they can derive from these types of auditor's opinions.[20]

Moody's Bond Ratings

According to Moody's Investors Services (1986) the primary purpose of its municipal bond ratings is to provide investors with a simple system of gradation by which the investment qualities of municipal bonds may be noted.[21] The "simple system which Moody's employs is based on nine categories which range from Aaa (highest) to C (lowest). For purposes of analysis, each of the rating categories employed by Moody's was assumed to be an ordinal level of measurement ranging from highest to lowest as follows: 1) Aaa, 2) Aa1, 3) Aa, 4) A1, 5) A, 6) Baa1, and 7) Baa. It should be noted that no governmental unit included in this study had a general obligation bond rating below Baa. The distribution of bond ratings for the eighty-one government units included in this study were as follows:

Aaa	12
Aa1	7
Aa	24
A1	18
A	11
Baa1	2
Baa	2
Not-rated	5

Hypotheses and Methodology

The primary hypothesis tested in this study was that:

> The distribution of types of audit opinions are the same for all bond ratings.

To test the above hypothesis, the Kendall Tau statistic, a measure of association between the classifications, was employed. The Kendall Tau statistic is based on the ranks of observations and requires that the data be measured on at least an ordinal scale).[22]

The primary research question, indicated earlier, is whether the ordering of opinions corresponds to the ordering of bond ratings. To investigate this research question nine separate comparisons were analyzed using the Kendall Tau statistic. These comparisons are presented in Table 1. The Kendall Tau procedure combines observations from two samples and ranks each observation from smallest to largest, a test statistic is computed, and an associated significance level (p-value) is obtained. A significance level of .05 was employed.

Results

The first six comparisons shown in Table 1 are similar to the comparisons made by Wallace in her study. For those comparisons where the observed p-value is below .05, the null hypothesis that there is no association can be rejected. As can be seen from Table 1 three of the Kendall Tau statistics were significant at the .05 level.

In two of the three comparisons in which the p-value was significant, the first three categories combined (Aaa, Aa1 and Aa) were compared relative to categories A1 through Baa and no rating or relative to categories A1 through Baa. In the third significant comparison, the audit opinions of bonds rated Aa were compared to A. This result is consistent with the previous two significant comparisions, since bonds rated Aa are part of the first three categories (Aaa, Aa1 and Aa) while bonds rated A are part of categories A1 through Baa and no rating.

When the first two bond rating categories were combined (Aaa and Aa1) and compared relative to category Aa, categories Aa through Baa and not rated or categories Aa through Baa, the results were not significant. That is, the bond rating was independent of the type of audit opinion. In addition, comparisons of Aa1 relative to Aa, Aaa relative Aa1, and A1 relative to A were also found not to be significant at the .05 level. Based on these comparisions, it can be concluded that the bond rating is associated with the type of audit opinion for bonds rated in the first three categories (Aaa, Aa1 and Aa) relative to bonds rated A1 and below, and for bonds rated Aa compared to A. However, types of audit opinion are independent of bond ratings for bonds rated in categories Aaa and Aa1 combined relative to bonds rated Aa and below.

Although not empirically tested it appears that the NCGA pronouncements relating to defining the governmental

Table 1

Kendall Tau Statistic for the Association Between Type of Audit Opinion and Governmental Bond Ratings

Comparison	Count	
1. Bonds rated Aaa and Aa1	19	T = .145
compared to Aa	24	p = .36
2. Bonds rated Aa1	7	T = .218
compared to Aa	24	p = .27
3. Bonds rated Aa	24	T = .655
compared to A	11	p = .02*
4. Bonds rated Aaa, Aa1 and Aa	43	T = .509
compared to A1, A, Baa1, Baa, and not rated	38	p = .05*
5. Bonds rated Aaa and Aa1	19	T = .327
compared to Aa, A1, A, Baa1, Baa1, Baa, and not rated	62	p = .16
6. Bonds rated Aaa	12	T = .327
compared to Aa1	7	p = .16
7. Bonds rated Aaa and Aa1	19	T = .291
compared to Aa, A1, A, Baa1, and Baa	57	p = .20
8. Bonds rated A1	18	T = .291
compared to A	11	p = .20
9. Bonds rated Aaa, Aa1, and Aa	43	T = .546
compared to A1, A, Baa1, and Baa	33	p = .04*

* Significant at the .05 level.

reporting entity have had an impact on the auditor's report. Table 2, which shows the distribution of types of audit opinions by bond rating, indicates that approximately 31% (25 out of a possible 81) of the audit reports analyzed refer to the audit of part or all of a fund type by another auditor. In addition, there were three instances in which a local governmental unit received a qualified opinion either because an included component unit received a qualified opinion or because a component unit was omitted from the reporting entity when it should have been included.

Limitations of the Study

The present study has two noteworthy limitations. First, this study analyzed only one input into the bond rating process, namely the type of audit report. There are numerous other factors both statistical and

Table 2

Distribution of Types of Audit Opinions by Bond Rating

	Unqualified	Unqualified with Reference	Consistency only	Consistency with Reference	Subject to	Except for	Except for with Reference	Except with Consistency
Aaa	7(58.5%)*	1(8.3%)	1(8.3%)	1(8.3%)		1(8.3%)	1(8.3%)	
Aa1	4(57.1%)	2(28.6%)				1(14.3%)		
Aa	7(29.3%)	2(8.3%)	5(20.8%)	5(20.8%)	2(8.3%)		2(8.3%)	1(4.2%)
A1	7(38.8%)	5(27.8%)	4(22.2%)		1(5.6%)	1(5.6%)		
A	5(45.5%)	1(9.1%)	3(27.3%)	1(9.1%)			1(9.1%)	
Baa1	1(50.0%)						1(50.0%)	
Baa		1(50.0%)						1(50.0%)
Not Rated	3(60.0%)	1(20.0%)				1(20.0%)		
Total	34	13	13	7	3	4	5	2

* Percentage in ( ) indicate percent of in bond category which received that type of opinion

judgmental which are used by the rating agencies to evaluate the relative investment classification of a governmental bond issue which were not considered. Because factors such as legal restrictions, state income tax laws, financial accounting ratios, demographic and socioeconomic variables, municipal bond insurance protection as well as several auditing variables (i.e., type of auditor) were excluded and not controlled in this study, the results may have limited use as a basis for general inference.

Second, there is some concern over the scale used to measure the type of audit opinion. This study assumed that it approached an ordinal level of measurement, which is consistent with previous studies. However, the ordinal scale employed in this study differed somewhat from prior research and was constructed based on the annual reports analyzed.

Conclusions

Although this study was based on prior research conducted by Wallace, it does differ from her study in several respects. First, a cross section of local governmental units from various states, instead of just one state, was included in this study. And second, a different continuum of types of auditor opinions which were more relevant to currently applicable, generally accepted accounting principles for governmental units was employed. Even with these differences the results were similar to prior research in this area.

In summary, results of this study indicated that an association exists between type of audit report and bond ratings for categories Aaa, Aa1 and Aa compared to categories A1 and below. That is, governmental units with bond ratings of Aaa, Aa1 and Aa, in general, had "better" audit opinions than those governmental units with bond ratings of A1 and below. Although not empirically tested, the results also indicated that authoritative accounting pronouncements pertaining to the governmental financial reporting entity have made it frequently necessary for the principal auditor to make reference to the work of another auditor. Governmental units seeking a high bond rating may wish to take note of these results.

---

[1] Securities and Exchange Commission, *Report on the City of New York*, February, 1979.

[2] Roy M. Goodman, "Municipal Bond Rating Testimony", *Financial Analyst Journal*, May-June 1968, pp. 59-65.

[3] J. Peterson., *The Rating Game*, New York: Twentieth Century Fund, 1974.

[4] Wallace, Wanda A., "The Association Between Municipal Market Measures and Selected Financial Practices," *Journal of Accounting Research*, Vol. 19, Autumn 1981, pp. 502-520.

[5] Standard and Poor's, "Who's Watching the Books," *Perspective*, November 1980.

[6] Wallace, "The Association . . ." pp. 502-520; and Earl R. Wilson and Thomas P. Howard, "The Association Between Municipal Market Measures and Selected Financial Reporting Practices: Additional Evidence" *Journal of Accounting Research*, Vol. 22, Spring 1984, pp. 207-224.

[7] Wallace, "The Impact of Selected Financial Reporting Practices and the Nature of the Audit Opinion Upon Municipal Interest Cost and Bond Rating." Unpublished Ph.D. dissertation, University of Florida, 1978.

[8] ______., "The Association . . ." pp. 502-520.

[9] Wilson and Howard "The Association . . ." pp. 207-224.

[10] W.D. Haseman and R.P. Strauss, "The Quality of Financial Reporting by General Purpose Local Governments," In Objectives of Accounting and Financial Reporting for Governmental Units: A Research Study, Vol. II, Chicago: National Council on Governmental Accounting, 1981; and Ernst and

Whinney, *How Cities Can Improve Their Financial Reporting*, Cleveland: Ernest & Whinney, 1979.

[11] S.H. Baskin, "The Information Content of the Audit Report as Perceived by Municipal Analysts", *Research in Governmental and Nonprofit Accounting*, vol. 2, pp. 53-88.

[12] Even though mergers have reduced the "Big 8" to a total of six firms, the term Big 8 is commonly used to describe the largest international CPA Firms.

[13] Wallace, "Auditing Research: Where Are We Now?" prepared for presentation at the 10th Annual Accounting Research Convocation of the University of Alabama, 1984.

[14] Governmental Finance Officers Association, *Fiscal Almanac*, 1982, Chicago: GFOA, 1986.

[15] Moody's Investors Services, *Moody's Bond Record*, New York: Investors Services, 1984-86.

[16] H.M. Anderson, J.W. Giese and J. Booker, "Some Propositions about Auditing". *The Accounting Review*, July 1970, pp. 524-31.

[17] Wallace, "The Association . . ." pp. 502-520.

[18] American Institute of Certified Public Accountants, Audit and Accounting Guide, *Audits of State and Local Governmental Units*, Revised Edition, AICPA, 1986.

[19] National Council on Governmental Accounting, Statement 3, *Defining the Governmental Reporting Entity*, Chicago: NCGA, 1981; and National Council on Governmental Accounting, Statement 7, *Financial Reporting for Component Units Within the Governmental Reporting Entity*, Chicago: NCGA, 1984.

[20] American Institute of Certified Public Accountants, *Commission on Auditor's Responsibilities*, AICPA, 1978.

[21] Moody's Investors Services, *Moody's Bond Record*, 1984-86.

[22] Jean Dickinson Gibbons, *Nonparametric Methods For Quantative Analysis*, American Sciences Press, 1985.

Accounting Standards for Aquacultural Producers: What CPAs Think

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Introduction

The development of specialized industry accounting principles is sometimes mandated when an industry is characterized by unique operations. The American Institute of Certified Public Accountants (AICPA) has published a number of audit and accounting guides and statements of position intended to prescribe preferable accounting treatments for entities involved in unique industries, such as real estate, health care, banking, mining and agriculture. A determination of the uniqueness and significance of the industry as well as consideration of the needs of users of financial statements must precede the development of such specialized standards.

The purpose of this paper is to report the findings of a survey aimed at ascertaining the propriety of using financial accounting standards based on accrual accounting principles as the basis for preparing external financial statements for entities involved in aquacultural production. Specifically, this paper addresses the question: Are the accrual accounting principles recommended by the AICPA for agricultural producers appropriate for aquacultural producers? This paper presents the results of an analysis of data gathered from 25 accounting firms located in Mississippi. Certified public accountants (CPAs) practicing in Mississippi were selected to be surveyed because 1) Mississippi leads the nation in farm-raised catfish production and is also the location of other commercial aquacultural operations producing products such as farm-raised shrimp and crawfish, and 2) CPAs are keenly aware of the costs and benefits associated with financial statements prepared according to accounting standards based on accrual accounting principles.

Overview and Justification of the Study

Aquaculture – the production of fish – is becoming a significant part of total agricultural production in the United States. Total aquacultural production in 1988 was about 790 million pounds with a farm gate value of more than $600 million.[1] Farm-raised catfish production, which accounts for almost one-half of industry production and sales, has grown an average of 25 percent per year over the past decade. Currently, there are over 1900 catfish producers operating in seventeen states; however, most production takes place in Mississippi, Arkansas, Alabama, Louisiana, and California. The most significant force in catfish production is Mississippi, accounting for more than 75 percent of total domestic catfish production in 1988.[2] In Mississippi, the value of annual catfish production for 1989 (about $300 million) was surpassed only by poultry and eggs (about $700 million), forestry (about $640 million) and cotton (about $600 million).[3] However, in 1988, Mississippi's share of water acreage fell and its share of output dropped over 6 percent.[4] The next four major producing States – Arkansas, Alabama, Louisiana, and California – showed a 13 percent increase in water acreage, an 18 percent gain in output, and a 31 percent rise in farm gate value in 1988.[5]

The peculiarities associated with the farm production of fish may necessitate the development and application of appropriate specialized industry accounting principles. The most significant accounting issues concern inventory valuation and revenue recognition. For example, a producer's inventory of fish may not be physically observed while residing in the pond and the quantity of inventory in the pond is ever changing, either increasing through growth in fish size or decreasing because of fish mortality. Further, because aquacultural farmers often produce traditional row crops simultaneously with fish production, there may be no systematic and rational method to identify and allocate overhead costs among the various crops. Therefore, the application of current inventory pricing and valuation methods – based on traditional accounting principles – may be cost prohibitive or impractical. In short, aquacultural production appears to be an exceptional case where it is not practicable to determine an appropriate cost basis for products.

Further, most aquacultural products may be marketed readily at quoted market prices. Generally, market demand and prices are established and stabilized by the influences of processors. Accounting Research Bulletin (ARB) 43 states that in some exceptional cases it may be appropriate to value inventories at market (above cost) and recognize revenue accordingly. Such treatment may be justifiable by the inability to determine approximate inventory costs, immediate marketability of products at quoted market prices and the characteristic of unit interchangeability.[6] Accounting Principles Board (APB) Statement 4 and Accounting Research Study (ARS) 13 also support a market value approach to inventory valuation citing similar criteria as justification. Because aquacultural products seem to satisfy the criteria established by ALB 43, APB Statement 4 and ARS 13, market price may be the appropriate basis for valuing inventory.

Finally, ALB 4-3, APB Statement 4, and ARS 13 also justify exceptions to the general accrual accounting principle to recognize revenue when earned – usually at the time of sale. The characteristics of aquacultural production discussed above seem to suggest that the completion of production is the appropriate "critical event" that may be used to identify the proper period for revenue recognition. However, exactly what constitutes the completion of the production process may not be straightforward. For example, fish may be readily marketed at several stages in their life cycle: fish may be sold after a few weeks growth as fingerlings; after several months as stockers; after a year to eighteen months as foodfish; and after two to three years growth as broodfish. This characteristic of aquacultural production may also necessitate the development of appropriate specialized accounting standards concerning revenue recognition.

Research design

A questionnaire was mailed to thirty-six CPA firms—each located in Mississippi and serving clients involved in aquacultural production. The questionnaire was designed to gather information regarding their attitudes toward the use of accrual accounting standards for aquacultural producers' external financial reports. Preliminary research indicated that those 36 firms provide accounting services for about 90% of the aquacultural producers operating in Mississippi. CPAs practicing in Mississippi were selected to be surveyed because (1) they are keenly aware of the costs and benefits associated with financial statements prepared according to accrual accounting principles, (2) they have the appropriate technical expertise and training to enable them to answer the questions knowledgeably, and (3) Mississippi leads the nation in farm-raised catfish production and is also the location of other commercial aquacultural operations. The questionnaire was designed to allow the individual most familiar with the firm's aquacultural accounting practice to indicate his opinion regarding certain financial accounting and reporting standards.

The questionnaire contained seventeen questions designed to gather information about the attitudes of CPAs toward many of the agricultural accounting standards and reporting practices established by the AICPA in *Statement of Position (SOP) 85-3*. Attitudes were quantified on a scale from 0 to 4, indicating the degree of favor with which CPAs responding to the questionnaire viewed the principle. The scale is as follows:

0 = None
1 = Some
2 = Quite a bit
3 = Extremely
4 = Completely

The scale was reproduced next to each question. Respondents were asked to indicate their answers by circling the number on the scale which most clearly expressed their favor for the recommended accounting treatment. Responses to each of the questions were averaged and presented for all CPAs that responded to the questionnaire.

Twenty-five CPA firms (69%) responded to the mail survey. Each of the respondents is a member of the Mississippi Society of Certified Public Accountants and has experience practicing in the agricultural industry. These CPA firms provide accounting services for 215 of the 358 aquacultural producers operating in Mississippi. Thus, 60% of Mississippi's aquacultural producers are represented by the firms responding to the survey.

Because the questionnaire response rate was less than 100 percent, a test for non-response bias was conducted. The nonresponse test used compares respondents with nonrespondents by gathering information about the nonrespondents. Of the 36 CPA firms selected to be included in the first mailing, 25 firms completed and identified themselves on the questionnaire. The 11 CPA firms identified as nonrespondents were mailed a nonresponse form allowing them to indicate the reason(s) for not responding to the questionnaire. Of the 11 nonresponse forms mailed, 8 were returned with an indication of the reason for nonresponse.

The information about nonresponse is reported below in the order of frequency of mention. Results indicated that most of the nonresponse is due to the length of the questionnaire; nonrespondents believed it required too much of their time to complete. Otherwise, there is no overriding reason to account for the nonresponse. This information suggests that there is no systematic bias characteristic of the group of nonrespondents. However, the reader is cautioned that the results of the study are based on the responses received. Any generalizations beyond the data collected are made without complete assurance that they are truly representative of all CPAs.

Results

The 25 CPA firms responding to the survey were segregated into two groups. The first group includes firms with clients using accrual accounting for financial reporting purposes (9 firms), referred to as the "accrual" group. The second group includes firms with no clients using accrual accounting for external financial reporting purposes (16 firms), referred to as the "cash-basis" group. The objective of the analysis was to address two primary questions: 1) Are the accrual accounting principles recommended by the AICPA for agricultural producers appropriate for aquacultural producers and 2) Do the opinions of CPAs preparing cash or modified-cash basis financial statements for their clients correspond with the opinions of CPAs prepar-

Explanation	Number	Percentage
Questionnaires returned Completed	25	69%
Questionnaires not returned because:		
(1) questionnaire too long	7	20%
(2) information considered confidential	1	2%
(2) other (did not respond)	3	9%
Total questionnaires not returned	11	31%
Total	36	100%

ing accrual-basis financial statements for their clients? For each of the responses, a mean was calculated and assigned a ranking. The means and rankings summarize the degree of favor attributable to each accrual accounting treatment recommended in *SOP 85-3*. A standard deviation was also calculated for each of the seventeen items. This statistic provides an indication of how widely individual responses to each item vary from the mean response. For each item, the larger the standard deviation, the greater the disagreement within groups regarding the item's appropriateness. Finally, the Mann-Whitney U-test was conducted for each response to determine areas where a statistically significant difference exists between the median response of the opinions of the "accrual" group CPAs and the "cash-basis" group CPAs. Table 1 presents the results of the analysis of the responses to the questionnaire.

Before discussing the results presented in Table 1, it may be valuable to note the number of aquacultural producers represented by each group. Of the 215 aquacultural producers represented by the 25 CPAs responding to the survey, 75 producers use the accrual-basis of accounting and 145 producers use the cash or modified-cash basis of accounting for financial reporting purposes. This may be due to a reluctance to adopt accrual-basis accounting possibly because, in general, accrual-basis accounting is more costly to adopt and apply compared with the cash or modified-cash basis of accounting.

As shown in Table 1, the accrual group respondents favored five of the seventeen recommended treatments completely, seven extremely, three quite a bit, and two some. Mean responses range from 4.000 for capitalizing and depreciating the costs of water distribution systems and wells (items 10 and 13) to 0.857 for accumulating the costs of developing broodfish until maturity and then depreciating the accumulated costs over the animal's useful life (item 15). The cash-basis group respondents favored seven of the seventeen recommended treatments extremely, six quite a bit, and four some. Mean responses of the cash-basis group are considerably lower, overall, than accrual group mean responses. Means range from a high of 3.438 for capitalizing the costs of water distribution systems and wells (item 10) to 0.598 for capitalizing production overhead costs as inventory (item 6).

The null hypothesis that the accrual group responses are equal to the cash-basis group responses was tested at the 0.05 level of significance for each of the seventeen recommended accounting treatments. In nine of the tests the null hypothesis was rejected. The fact that nine of the seventeen tests (53%) are significant suggests that the two groups have statistically differing opinions regarding the appropriateness of applying the accounting treatments recommended by *SOP 85-3* to aquacultural producers. In all of the tests that were significant, the mean response of the accrual group is greater than the mean response of the cash-basis group. Further, only four of the seventeen mean responses for the cash-basis group exceed that of the accrual group. In other words, while the accrual group responses seem to indicate that most of the accrual accounting principles recommended by the AICPA for agricultural producers are appropriate for aquacultural producers as well, most of the

Table 1

Summary of Questionnaire Results

Recommended Treatment:[a]	Accrual Group Mean[b]	Accrual Group Mean Ranking	Accrual Group Standard Deviation	Cash-Basis Group Mean[b]	Cash-Basis Group Mean Ranking	Cash-Basis Group Standard Deviation	Stat Sig[c]
1. Balance sheet (accrual basis)	3.125(E)	9	1.458	1.813(QB)	9	1.377	Yes
2. Income statement (accrual basis)	3.125(E)	9	1.458	1.875(QB)	8	1.455	Yes
3. Statement of cash flows	3.000(E)	11	1.512	1.625(QB)	11	1.258	Yes
4. Notes to the financial statements	2.625(E)	12	1.598	1.500(QB)	12	1.095	Yes
5. Capitalize the cost of fish purchased as inventory	3.375(E)	6	1.408	0.688(S)	16	1.493	Yes
6. Capitalize production overhead costs as inventory	2.375(QB)	13	1.598	0.598(S)	17	1.367	Yes
7. Write-off abnormal production costs as period expenses	1.750(QB)	14	1.498	1.800(QB)	10	2.010	No
8. Report inventories of foodfish at the lower of cost or market	3.250(E)	7	1.488	1.500(QB)	12	1.414	Yes
9. Capitalize costs of clearing land and initial leveling of land	3.500(C)	5	1.414	2.813(E)	6	1.601	No
10. Capitalize costs of water distribution systems and wells	4.000(C)	1	0.000	3.438(E)	1	1.395	Yes
11. Capitalize costs of ponds	3.921(C)	3	0.300	3.313(E)	3	1.195	No
12. Do not depreciate capitalized costs of clearing land and initial leveling of land	1.375(S)	16	1.851	1.225(S)	14	1.570	No
13. Depreciate capitalized costs of water distribution systems and wells	4.000(C)	1	0.000	3.408(E)	2	1.153	Yes
14. Depreciate capitalized costs of ponds	3.750(C)	4	0.707	3.313(E)	3	1.195	No
15. Accumulate the cost,s of developing broodfish until maturity then depreciate over useful life	0.857(S)	17	1.463	0.933(S)	15	1.486	No
16. Report investments in cooperatives at cost	3.250(E)	7	1.035	3.267(E)	5	0.961	No
17. Adjust the cooperative investment account for prorata share of cooperative losses	1.750(QB)	14	1.581	2.700(E)	7	1.337	No

[a] Items 1-17 are recommended treatments according to agricultural GAAP outlined in *SOP 85-3*.

[b] The mean responses were categorized for comparison purposes as follows:

Category	Range of Mean Responses
C = Completely	3.500-4.000
E = Extremely	2.500-3.499
QB = Quite a Bit	1.500-2.499
S = Some	0.500-1.499
N = None	0.000-0.499

[c] Statistically significant at $\alpha = 0.05$

cash-basis group responses seem to indicate much less agreement with using these principles for aquacultural producers.

The treatments favored least by the accrual group respondents are accumulating the costs of developing broodfish until maturity and then depreciating the accumulated costs over the animal's useful life (item 15), and not depreciating the capitalized costs associated with clearing land and initial leveling (item 12). Both treatments received only some favor. Likewise, cash-basis group mean responses for items 12 and 15 indicate only some favor for the treatments. Further, cash-basis group respondents also indicated only some favor for capitalizing the cost of fish purchased as inventory and capitalizing production overhead costs as inventory (items 5 and 6, respectively).

The most significant difference of opinion between the two groups surrounds the capitalization of fish purchased as inventory (item 5). The accrual group mean response for this treatment is 3.375, indicating that the recommendation is favored "extremely". In contrast, the cash-basis group mean response is 0.688, indicating only some favor for the recommendation. Apparently, cash-basis group CPAs favor a partial use of the accrual accounting concept with an emphasis on reporting fixed assets other than inventories and developing animals (broodfish). Further, as mentioned earlier, accrual group mean responses for capitalizing and depreciating broodfish indicated only some favor for the treatment. The difficulties associated with accounting for inventory costs and the costs of developing broodfish may encourage an attitude to avoid capitalization altogether. Maintaining the inventory records necessary to identify and determine the quantities of fish on hand and allocate production costs is time-consuming, complex, and expensive. Further, these attitudes may be due, in part, to the fact that historically, farmers have used cash-basis accounting for financial reporting.

Finally, both groups indicated only some favor for treating the capitalized costs of clearing land and initial leveling as permanent land improvements (item 12). This may be due to their belief that these costs are an integral part of the total cost of constructing an aquacultural pond. Like the construction of other structures (for example, buildings, barns, and warehouses), aquacultural ponds must rest on suitably prepared land. It is common practice to include the costs of constructing a foundation as a part of the total cost of buildings, barns, and warehouses. Similarly, it appears reasonable to include the costs of clearing and initial leveling of land in connection with the construction of aquacultural ponds as an integral part of the total cost of the pond. If so, these costs might be considered depreciable limited-life expenditures. Further, within each group, the standard deviation associated with treating the costs of clearing and initial leveling as permanent land improvement is relatively large. This indicates a significant amount of disagreement exists among both "accrual" CPAs and "cash-basis" CPAs regarding the appropriateness of this recommended treatment.

Conclusions

While the goal of uniform accounting standards is appropriate, the overriding objective of financial reporting is to provide information useful in making resource allocation decisions. The AICPA considered some of the unique characteristics and special requirements of most of the agricultural industry in developing the accounting principles covered by *SOP 85-3* and provided certain exceptions to the uniform standards. Likewise, the AICPA should consider the unique characteristics of aquacultural production vis-a-vis the special needs of the users of financial statements in developing recommended accounting standards and reporting practices for entities involved in aquacultural production. This study suggests that there are further exceptions to be considered. Although totally separate accounting standards for aquacultural producers may not be necessary, this study indicates that in several areas adjustments may be appropriate to meet the needs of providers and users of financial statements. For example, accounting standards, such as 1) capitalizing purchased fingerlings and growing foodfish as inventory, reported at the lower of cost or market; 2) capitalizing production overhead costs as inventory; 3) capitalizing and depreciating the costs of developing broodfish; and 4) classifying initial leveling and clearing costs as permanent land improvement and development costs, should be investigated in more detail.

This study indicates that 1) CPAs seem to favor accounting standards that are relatively easy and inexpensive to apply, and 2) the opinions of CPAs preparing cash or modified-cash basis financial statements for their clients do not correspond with the opinions of CPAs preparing accrual-basis financial statements for their clients. In other words, CPAs are in disagreement about what should constitute generally accepted accounting principles (GAAP) for entities involved in aquacultural production. In order for financial statements to be most useful to investors, creditors, lenders, and other decision makers, it is crucial that the accounting standards prescribed as GAAP are in fact generally accepted by the preparers of financial statements. The AICPA may evaluate alternative accounting principles in light of these findings. Such an evaluation may lead to the establishment of accounting principles that are more readily accepted by aquacultural producers and their CPAs, thereby enhancing the comparability and meaningfulness of information presented in aquacultural entities' financial statements.

Finally, the reader should consider the results and conclusions of this study in light of the research design. The mail survey allowed for no follow-up questions. Therefore, the underlying rationale offered as the basis for certain responses is no more than informed speculation. Additionally, the results of this study are based on the perceptions of a small sample of practicing CPAs. Still, it is believed that these limitations are not overwhelming and that the results of this study support the tentative conclusion that certain financial accounting standards currently in force appear to be inappropriate for preparing external financial statements for entities involved in aquacultural production.

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[1] United States Department of Agriculture, *Aquaculture Situation and Outlook*, Economic Research Service, March 1989, p. 3.

[2] Ibid., pp. 6-7.

[3] Mississippi Agricultural & Forestry Experiment Station, Mississippi State University, February 1990.

[4] *Aquaculture Situation and Outlook*, March 1989, p. 6.

[5] Ibid.

[6] Committee on Accounting Procedure, *Accounting Research Bulletin No. 43*, (New York: AICPA, 1953), Chapter 4.

Editor's Note

The series "Arkansas Value Added by Manufacture" has been revised. This series is benchmarked to *U.S. Industrial Production: "Production and Business Activity"* which is prepared by the Board of Governors of the Federal Reserve System. Prior to 1982, respondents to the *Annual Survey of Manufacture* were permitted to value their inventories using any generally accepted accounting method. Effective 1982, Value Added by Manufacture (VAM) was computed using inventory data reported at cost or market prior to any adjustment to LIFO cost. Because of these changes, VAM data are no longer comparable to prior year's data; therefore a new technique for estimating Arkansas VAM developed that uses only post-1982 data. These VAM estimates will be revised and updated as more data become available.

Inquiries about the technical aspects of this change should be directed to Mary Alguire, Systems Analyst of this Bureau.

DRM, Editor

The Arkansas Economy

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Arkansas Per Capita Personal Income and Population in the 1980's (An Update)

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University of Arkansas

Introduction

The Summer 1989 issue of this *Review*[1] carried the most current Per Capita Personal Income and Population data then available on the Arkansas economy (1987) along with data for 1980. These data were used to rank the counties according to an *Index of Relative Economic Vitality* which reflected movements between 1980 and 1987. This paper presents the 1988 data which was recently released by the Bureau of Economic Analysis, U.S. Department of Commerce, and uses this data to update the county rankings that were calculated one year ago.

Part I
Per Capita Personal Income

Per Capita Income (measured in constant 1982 dollars) in the United States increased by 3.3% in 1988 to $13,594; in Arkansas the increase was 2.7% to $10,071. For the period 1980 through 1988 the U.S. average annual growth rate was 2.2% while the Arkansas rate was 2.0%. Arkansas Per Capita Income declined from 74.5% of the national average in 1987 to 74.1% in 1988. However, over the period 1980-1988, three Arkansas counties (Benton, Carroll, and Clay) experienced absolute growth of Per Capita Income that exceeded the U.S. gain of $2,020, and 33 of the 75 counties experienced percentage gains that were greater than the national rate of 2.2%. Table 1, page 28, presents these data with each county listed according to its ranking; Figure 1 shows county Per Capita Income as a percentage of the U.S average. Table 4, page 34, presents these data in current dollar form in an alphabetical listing of counties.

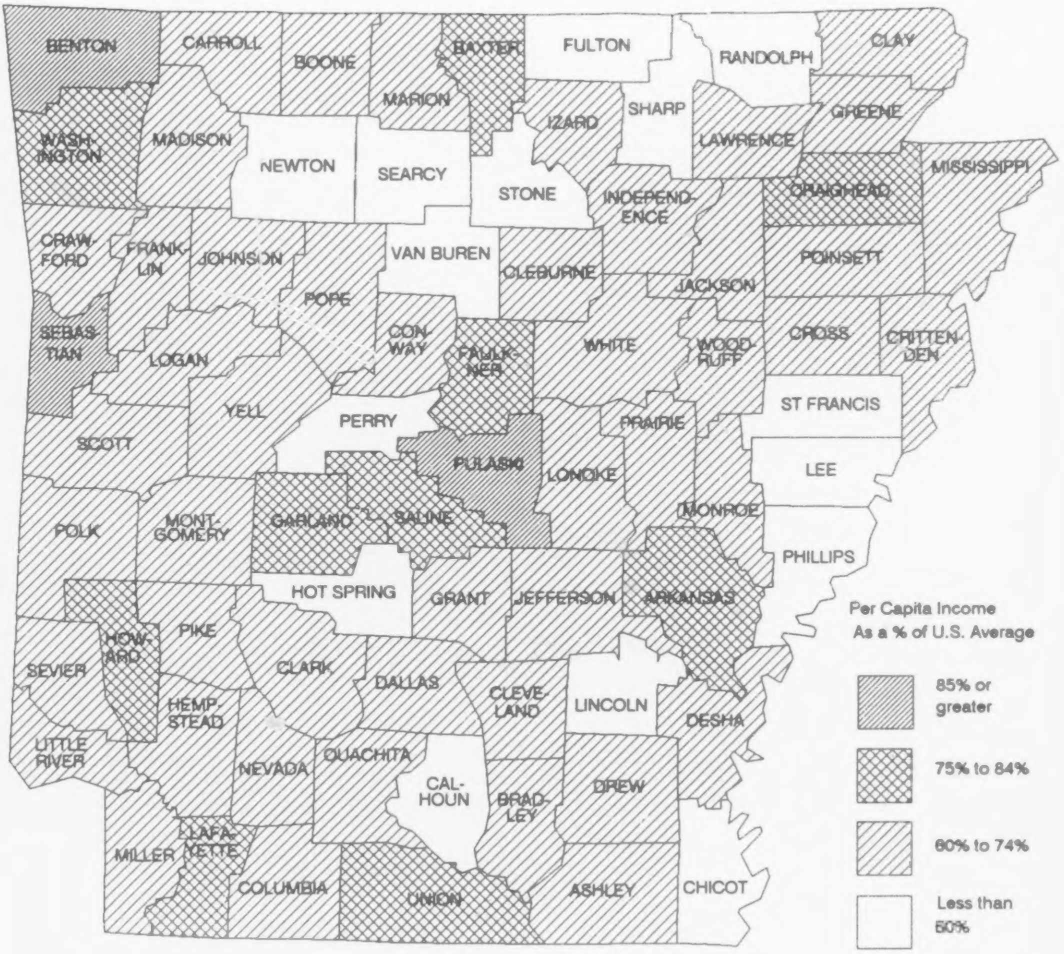
As was the case in 1987, no Arkansas county had Per Capita Income equal to, or greater than the national avenge. Pulaski County ranked highest with a Per Capita Income of $12,871 which was equal to 94.7% of the U.S. average. Sebastian and Benton Counties were second and third with $11,679 (85.9%) and $11,551 (85%), respectively. At the lower end of the spectrum was Stone County with a Per Capita Income of $6,826, or 50.2% of the U.S. average. Figure 1 shows the counties grouped according to Per Capita Income as a percent of the national average.

Part II
Population

Table 2, page 30, presents population data for the State, Metropolitan Statistical Areas, and the 75 counties for 1980 and

Figure 1

Arkansas' County Per Capita Income as a Percent of the U.S. Average


BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
IZARD
SHARP
LAWRENCE
GREENE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
INDEPENDENCE
JACKSON
POINSETT
SEBASTIAN
LOGAN
CONWAY
FAULKNER
WHITE
WOODRUFF
CROSS
CRITTENDEN
YELL
SCOTT
PERRY
PULASKI
LONOKE
PRAIRIE
ST FRANCIS
LEE
POLK
MONTGOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
HOWARD
PIKE
CLARK
DALLAS
CLEVELAND
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
BRADLEY
DREW
MILLER
LAFAYETTE
COLUMBIA
UNION
ASHLEY
CHICOT
Per Capita Income As a % of U.S. Average
85% or greater
75% to 84%
60% to 74%
Less than 60%

Source: Prepared by the Bureau of Business and Economic Research from data presented in Table 1.

1987. Each county is listed according to its population ranking in 1988. Rankings for 1980 and 1987 are also shown.

The rank of each county remained unchanged from 1987 even though all counties experienced population change. Relative to 1980, 42 counties gained population; 30 counties lost population. and, three counties had constant populations. The counties recording the greatest gains were Benton (17.1 thousand), Pulaski (15.7 thousand), Washington (10.0 thousand), and Faulkner (9.9 thousand). Counties experiencing the greatest losses were Phillips (2.9 thousand), Mississippi (2.2 thousand), Arkansas (1.6 thousand), and Clark (1.5 thousand). In summary, 42 counties gained in total population by 129.8 thousand; 30 counties lost in population by 24.9 thousand; and three counties' population remained constant.

The four counties (Faulkner, Lonoke, Pulaski, and Saline) comprising the Little Rock-North Little Rock Metropolitan Statistical Area (MSA)[2] gained 37.6 thousand between 1980 and 1988 and accounted for 36% of the state's population growth. Among MSAs, Pine Bluff (Jefferson) had the lowest growth rate (zero) over the period; however, this MSA did grow by 300 between 1987 and 1988.

Part III
The Relationship Between Population and Per Capita Income

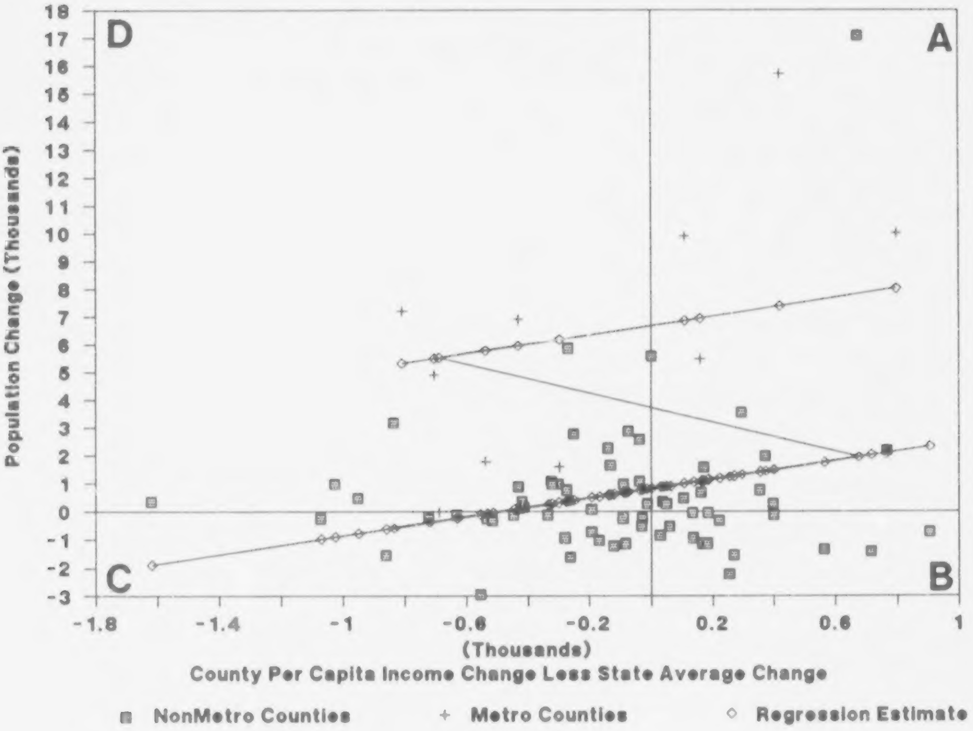
As noted one year ago, the patterns of population and Per Capita Income changes among the Arkansas counties tend to conform to economic theory. Counties with high income producing capacity (as measured by Per Capita Income) tend to gain in population while counties with low income producing capacity tend to lose population. An analysis of absolute amounts of change in population and Per Capita Income over the period 1980-1988 indicates that the theory is generally correct in that there is a statistically significant relationship between the two variables.[3] All counties experienced growth in real Per Capita Income, but those counties that experienced gains in excess of the state average tended to gain population while those with gains of less than the state average tended to lose population. The absolute change (relative to the state average) in real Per Capita Income explained 35% of the changes in county population. Figure 2 presents these data.

As shown in Figure 2, each of the 75 counties falls into one of four categories: A) 16 counties with above-average Per Capita Income growth and positive population change; B) 14 counties with below-average Per Capita Income growth, but negative population change; C) 26 counties with below-average Per Capita Income growth and positive population change; and D) 19 counties with below-average Per Capita Income growth and negative population change. These counties are identified in Figure 3, a county map of Arkansas.

As a group, counties in Category A gained population in the amount of 76.2 thousand while counties in Category B lost 11.9 thousand of their population. Categories A and B, which contain the Arkansas counties with above-average Per Capita Income, combined for 61.5% of the state's population growth between 1980 and 1988. The Category C counties' population grew by 53.6 thousand. Of this

Figure 2

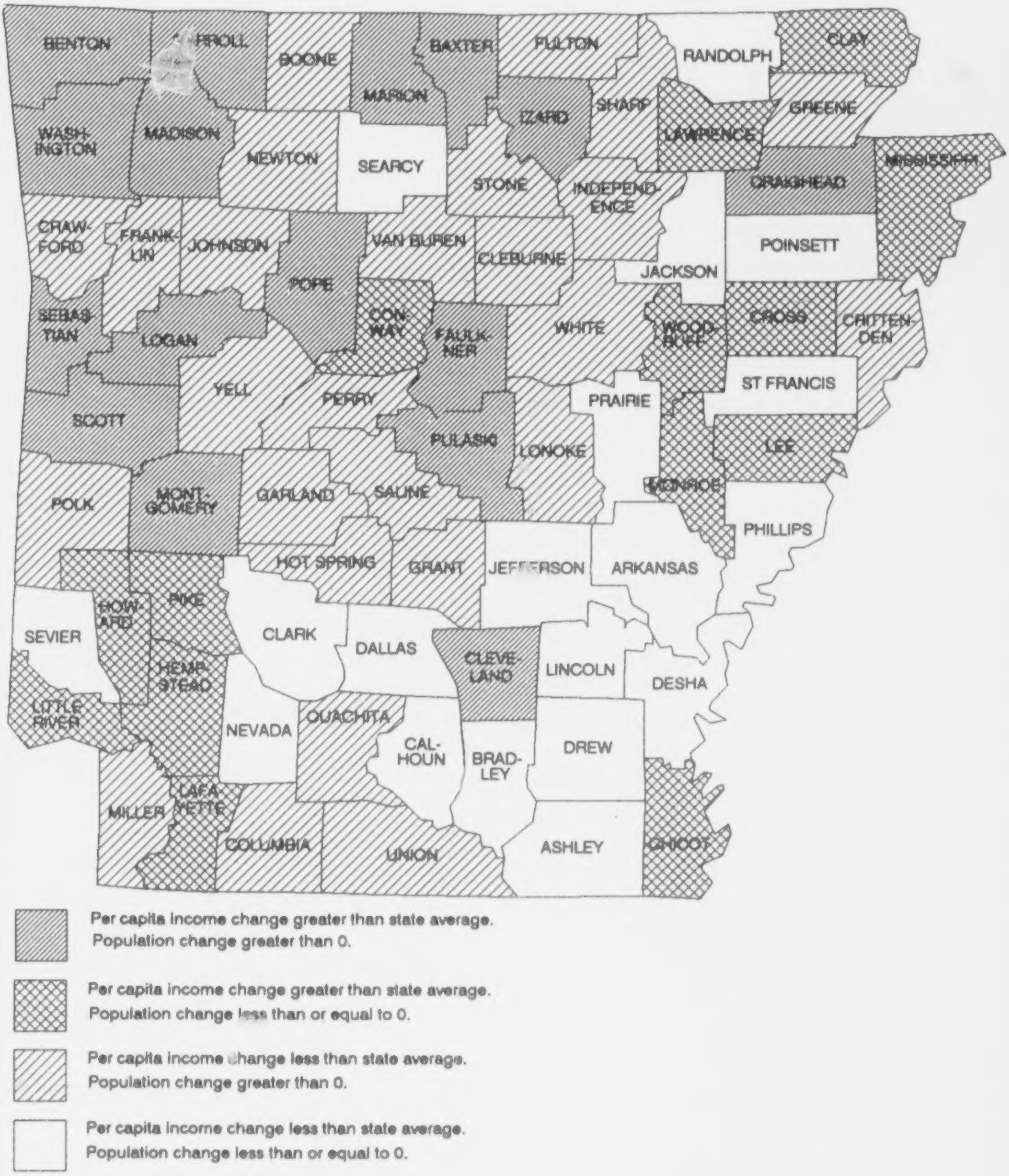
Arkansas' County Population and Per Capita Income Changes
1980 – 1988



Source: Derived from data presented in this paper.

Figure 3

Arkansas' Counties by Per Capita Income and Population Change (1980 – 1988) Category


BENTON
RROLL
BOONE
BAXTER
FULTON
RANDOLPH
CLAY
MARION
IZARD
SHARP
GREENE
WASH-INGTON
MADISON
NEWTON
SEARCY
STONE
LAWRENCE
MISSISSIPPI
INDEPEND-ENCE
CRAIGHEAD
CRAW-FORD
FRANK-LIN
JOHNSON
VAN BUREN
CLEBURNE
POINSETT
JACKSON
POPE
SEBAS-TIAN
LOGAN
CON-WAY
FAULK-NER
WHITE
WOOD-RUFF
CROSS
CRITTEN-DEN
YELL
PERRY
PRAIRIE
ST FRANCIS
SCOTT
PULASKI
LONOKE
LEE
POLK
MONT-GOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
HOW-ARD
PIKE
CLARK
DALLAS
CLEVE-LAND
LINCOLN
DESHA
HEMP-STEAD
LITTLE RIVER
NEVADA
OUACHITA
CAL-HOUN
BRAD-LEY
DREW
MILLER
LAFA-YETTE
COLUMBIA
UNION
ASHLEY
CHICOT
Per capita income change greater than state average. Population change greater than 0.
Per capita income change greater than state average. Population change less than or equal to 0.
Per capita income change less than state average. Population change greater than 0.
Per capita income change less than state average. Population change less than or equal to 0.

Source: Derived from data presented in this paper.

population growth, 20.8 thousand (38.9%) occurred in five counties (Crawford, Crittenden, Lonoke, Miller, and Saline) that are parts of MSAs. The counties in Category D lost population in the amount of 13 thousand. This group contained one MSA county (Jefferson). Categories C and D contain the state counties that had less-than-average Per Capita Income growth and combined for total population growth of 40.6 thousand, or 38.5% the state total growth.

Part IV
The 1988 County Rankings

The purpose of the ranking scheme that is employed is to identify not only those counties that are "doing well" but also those counties that are moving most rapidly toward a higher level of well-being. At the other end of the spectrum, the ranking scheme seeks to identify those counties that are not doing as well or are moving more slowly toward a higher degree of well-being or both. In an attempt to capture these conditions, the following variables have been considered:

1. 1988 Per Capita Income
2. Absolute Per Capita Income Change
3. Rate of Change of Per Capita Income 1980-1988
4. 1988 Population
5. Absolute Population Change 1980-1988
6. Rate of Change of Population 1980-1988

The 75 Arkansas counties were ranked in each category. The sum of each county's rankings in the six categories yields the *Index of Relative Economic Vitality*. If a county ranked first in each category it would achieve the perfect index value of six. If a county ranked 75th in each category, it would score the "perfectly worst" index value of 450. No county achieved either distinction. Benton County repeated as the top-ranked county with an index of 26; its 1987 index was 21. The 75th ranked county in 1988 was Prairie with an index of 369; the lowest ranked county in 1987, Lee, moved up to 55th place.

The same counties that were in the "top 10" in 1987 are there in 1988, although there were some changes in the positions of individual counties. Among the more significant improvements in rankings between the 1987 and 1988 rankings are: 1) Marion County improved from 30th to 12th based on above-average absolute and relative growth performance; 2) Lonoke County moved from 28th to 18th based on population growth performance; and, 3) Clay County moved from 46th to 28th based on high absolute and relative growth in Per Capita Income. However, the county that registered the greatest improvement was Cross which moved up 41 places, from 67th to 26th. Table 3, page 32, presents the complete list of county rankings.

Part V
Summary and Conclusions

When this rating scheme was put forth one year ago the author labeled it "imperfect". The author's rating of his ranking scheme remains unchanged. Population movements in response to Per Capita Income differentials tend to be slow in occurring, thus making neat statistical measurement difficult when relatively short periods of time are considered. Moreover, slow, or negative, rates of population change should not be considered as *prima facie* evidence of a declining county economy. In many cases these rates of population change are reflective of an economy in transition. For example, a county that is moving from a predominately labor intensive agricultural base to one containing more manufacturing will probably go through a period of population decline as the adjustment process works itself out. In cases such as this, bigger is not necessarily better.

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[1] Donald R. Market, "Arkansas Per Capita Personal Income and Population in the 1980's." *Arkansas Business and Economic Review*, Vol. 22, No. 2, Summer 1989.

[2] Designated MSAs consisting wholly or in part of Arkansas counties are: 1) Memphis MSA includes Crittenden County in Arkansas, Tipton and Shelby Counties in Tennessee, and De Soto County in Mississippi; 2) Little Rock-North Little Rock MSA includes Faulkner, Lonoke, Pulaski and Saline Counties in Arkansas; 3) Texarkana MSA includes Miller County in Arkansas and Bowie County in Texas; 4) Fayetteville-Springdale MSA includes Washington County in Arkansas; 5) Fort Smith MSA includes Crawford and Sebastian Counties in Arkansas, and Sequoyah County in Oklahoma; and 6) Pine Bluff MSA includes Jefferson County in Arkansas.

[3] County Population Change

$$= .827 + .00167X_1 + 5.8549X_2$$
$$(5.43)^{*} \quad (35.62)^{**}$$
$$R^2 = .3541$$

X_1 = Absolute County Real Per Capita Income Change (1980-88) minus Arkansas Average Real Per Capita Income Change (1980-88).

X_2 = Dummy Variable: Counties that are parts of MSAs = 1; All others = 0.

F Statistic in Parentheses

* Significant at the .05 Level.

** Significant at the .0001 Level.

Table 1

Arkansas Per Capita Income Data [In Constant (1982) Dollars]

	Rank			Per Capita Income		1980-88		Avg. Annual % Change 1980-88	1988 Per Capita Income as a % of U.S. Avg.
	1988	1987	1980	1988	1980	Change	% Change		
United States				13,594	11,574	2,020	17.5	2.2	100.0
State of Arkansas				10,071	8,711	1,360	15.6	2.0	74.1
MSAs									
Memphis, TN-AR-MS	1	1	2	12,742	10,609	2,133	20.1	2.5	93.7
Little Rock-North LR	2	2	1	12,109	10,634	1,475	13.9	1.7	89.1
Texarkana, AR-TX	3	3	3	10,682	9,576	1,105	11.5	1.4	78.6
Fayetteville-Springdale	4	4	6	10,589	8,431	2,158	25.6	3.2	77.9
Fort Smith, AR-OK	5	5	4	10,092	9,047	1,046	11.6	1.4	74.2
Pine Bluff	6	6	5	9,472	8,802	671	7.6	1.0	69.7
Arkansas Counties									
Pulaski	1	1	1	12,871	11,092	1,778	16.0	2.0	94.7
Sebastian	2	3	2	11,679	10,161	1,518	14.9	1.9	85.9
Benton	3	2	7	11,551	9,516	2,035	21.4	2.7	85.0
Union	4	4	3	11,100	10,152	948	9.3	1.2	81.6
Garland	5	5	4	11,011	9,918	1,092	11.0	1.4	81.0
Arkansas	6	13	6	10,915	9,816	1,099	11.2	1.4	80.3
Baxter	7	6	9	10,870	9,215	1,655	18.0	2.2	80.0
Washington	8	9	21	10,589	8,431	2,158	25.6	3.2	77.9
Faulkner	9	7	10	10,588	9,118	1,470	16.1	2.0	77.9
Lafayette	10	17	25	10,533	8,267	2,266	27.4	3.4	77.5
Craighead	11	11	14	10,453	8,721	1,732	19.9	2.5	76.9
Saline	12	10	5	10,369	9,817	552	5.6	0.7	76.3
Howard	13	8	19	10,282	8,522	1,760	20.7	2.6	75.6
Carroll	14	12	30	10,110	7,981	2,129	26.7	3.3	74.4
Grant	15	15	11	10,097	9,058	1,039	11.5	1.4	74.3
Lonoke	16	20	8	10,053	9,397	656	7.0	0.9	73.9
Boone	17	18	15	10,028	8,704	1,324	15.2	1.9	73.8
Columbia	18	14	12	10,002	8,833	1,169	13.2	1.7	73.6
Ashley	19	16	17	9,745	8,578	1,168	13.6	1.7	71.7
Miller	20	19	16	9,732	8,671	1,061	12.2	1.5	71.6
Conway	21	21	24	9,701	8,279	1,422	17.2	2.1	71.4
Pope	22	22	27	9,525	8,163	1,362	16.7	2.1	70.1
Jefferson	23	23	13	9,472	8,802	671	7.6	1.0	69.7
Little River	24	26	33	9,430	7,932	1,498	18.9	2.4	69.4
Independence	25	27	28	9,392	8,163	1,229	15.1	1.9	69.1
Lawrence	26	43	31	9,353	7,961	1,391	17.5	2.2	68.8
Clay	27	45	56	9,339	7,261	2,077	28.6	3.6	68.7
Cleveland	28	37	36	9,283	7,872	1,411	17.9	2.2	68.3
Cross	29	58	42	9,275	7,692	1,583	20.6	2.6	68.2
Izard	30	24	37	9,269	7,870	1,398	17.8	2.2	68.2
Logan	31	31	39	9,214	7,747	1,468	18.9	2.4	67.8
Pike	32	36	45	9,214	7,667	1,547	20.2	2.5	67.8
Sevier	33	25	26	9,156	8,240	915	11.1	1.4	67.3

Table 1 (Cont.)

	Rank			Per Capita Income		1980-88		Avg. Annual % Change	1988 Per Capita Income as a % of U.S. Avg.
	1988	1987	1980	1988	1980	Change	% Change	1980-88	
Dallas	34	34	23	9,114	8,286	828	10.0	1.2	67.0
Bradley	35	29	29	9,093	8,012	1,081	13.5	1.7	66.9
Clark	36	30	18	9,035	8,534	501	5.9	0.7	66.5
Mississippi	37	47	50	9,019	7,403	1,616	21.8	2.7	66.3
Jackson	38	52	38	9,015	7,775	1,240	15.9	2.0	66.3
Poinsett	39	44	40	9,010	7,732	1,278	16.5	2.1	66.3
Ouachita	40	41	20	8,961	8,435	526	6.2	0.8	65.9
Yell	41	28	46	8,952	7,629	1,323	17.3	2.2	65.9
Woodruff	42	57	59	8,947	7,023	1,924	27.4	3.4	65.8
Nevada	43	40	48	8,889	7,558	1,331	17.6	2.2	65.4
Franklin	44	32	47	8,832	7,560	1,272	16.8	2.1	65.0
Madison	45	33	52	8,810	7,287	1,523	20.9	2.6	64.8
Cleburne	46	38	41	8,805	7,694	1,111	14.4	1.8	64.8
Drew	47	46	32	8,786	7,939	847	10.7	1.3	64.6
Marion	48	53	57	8,782	7,250	1,532	21.1	2.6	64.6
Greene	49	51	43	8,748	7,688	1,059	13.8	1.7	64.3
Crittenden	50	54	35	8,707	7,884	823	10.4	1.3	64.1
Hempstead	51	39	58	8,705	7,205	1,499	20.8	2.6	64.0
Scott	52	42	61	8,656	6,942	1,715	24.7	3.1	63.7
Polk	53	35	54	8,628	7,280	1,348	18.5	2.3	63.5
Crawford	54	48	44	8,603	7,676	928	12.1	1.5	63.3
Desha	55	62	51	8,587	7,396	1,191	16.1	2.0	63.2
White	56	49	55	8,558	7,272	1,286	17.7	2.2	63.0
Monroe	57	66	62	8,528	6,897	1,631	23.6	3.0	62.7
Prairie	58	63	34	8,528	7,887	641	8.1	1.0	62.7
Montgomery	59	50	67	8,424	6,666	1,757	26.4	3.3	62.0
Johnson	60	55	49	8,346	7,417	930	12.5	1.6	61.4
Randolph	61	61	64	8,149	6,816	1,334	19.6	2.4	59.9
Hot Spring	62	56	22	8,129	8,387	-258	-3.1	-0.4	59.8
Van Buren	63	59	68	7,878	6,656	1,222	18.4	2.3	58.0
Perry	64	60	66	7,810	6,722	1,087	16.2	2.0	57.4
Chicot	65	74	71	7,627	6,099	1,528	25.1	3.1	56.1
Sharp	66	65	53	7,617	7,282	334	4.6	0.6	56.0
Phillips	67	69	65	7,565	6,757	807	11.9	1.5	55.6
Calhoun	68	64	63	7,561	6,830	731	10.7	1.3	55.6
Searcy	69	70	70	7,385	6,114	1,271	20.8	2.6	54.3
St. Francis	70	67	60	7,302	7,013	289	4.1	0.5	53.7
Lincoln	71	73	72	7,091	6,064	1,027	16.9	2.1	52.2
Lee	72	75	75	7,068	5,524	1,545	28.0	3.5	52.0
Fulton	73	68	69	7,002	6,592	410	6.2	0.8	51.5
Newton	74	71	73	6,838	5,895	943	16.0	2.0	50.3
Stone	75	72	74	6,826	5,789	1,037	17.9	2.2	50.2

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C., May 1990.

Table 2

Arkansas Population Data
1980 and 1988

	Population Rank			Population (thousands)		1980-88 Population Change (thousands)	1980-88 Population % Change
	1988	1987	1980	1988	1980		
State of Arkansas				2,394.7	2,290.1	104.6	4.57
MSAs							
Memphis, TN-AR-MS	1	1	1	979.3	915.9	63.4	6.92
Little Rock-North LR	2	2	2	513.1	475.5	37.6	7.91
Fort Smith, AR-OK	3	3	3	180.7	163.3	17.4	10.66
Texarkana, AR-TX	4	4	4	119.4	113.4	6.0	5.29
Fayetteville-Springdale	5	5	5	110.6	100.6	10.0	9.94
Pine Bluff	6	6	6	90.8	90.8	0.0	0.00
Arkansas Counties							
Pulaski	1	1	1	356.9	341.2	15.7	4.60
Washington	2	2	2	110.6	100.6	10.0	9.94
Sebastian	3	3	3	100.9	95.4	5.5	5.77
Benton	4	4	5	95.6	78.5	17.1	21.78
Jefferson	5	5	4	90.8	90.8	0.0	0.00
Garland	6	6	6	76.5	70.6	5.9	8.36
Craighead	7	7	7	65.2	63.2	2.0	3.16
Saline	8	8	9	60.5	53.3	7.2	13.51
Mississippi	9	9	8	57.2	59.4	-2.2	-3.70
Faulkner	10	10	13	56.2	46.3	9.9	21.38
White	11	11	10	53.9	51.0	2.9	5.69
Crittenden	12	12	11	51.3	49.5	1.8	3.64
Union	13	13	12	48.8	48.6	0.2	0.41
Pope	14	14	14	44.8	39.2	5.6	14.29
Crawford	15	15	16	43.9	37.0	6.9	18.65
Lonoke	16	16	18	39.5	34.6	4.9	14.16
Miller	17	17	15	39.5	37.9	1.6	4.22
Ouachita	18	18	21	33.8	30.6	3.2	10.46
Independence	19	19	22	32.0	30.3	1.7	5.61
Phillips	20	20	17	31.8	34.7	-2.9	-8.36
Greene	21	21	20	31.8	30.8	1.0	3.25
St. Francis	22	22	19	30.7	30.9	-0.2	-0.65
Baxter	23	23	23	31.1	27.5	3.6	13.09
Boone	24	24	28	28.7	26.1	2.6	9.96
Hot Spring	25	25	25	27.2	26.8	0.4	1.49
Columbia	26	26	26	26.8	26.7	0.1	0.37
Ashley	27	27	27	25.9	26.6	-0.7	-2.63
Poinsett	28	28	24	25.9	27.0	-1.1	-4.07
Hempstead	29	29	30	22.7	23.6	-0.9	-3.81
Arkansas	30	30	29	22.6	24.2	-1.6	-6.61
Clark	31	31	31	21.8	23.3	-1.5	-6.44
Logan	32	32	35	20.7	20.2	0.5	2.48
Jackson	33	33	32	20.4	21.6	-1.2	-5.56
Cross	34	34	34	20.2	20.5	-0.3	-1.46
Cleburne	35	35	44	19.7	16.9	2.8	16.57
Clay	36	36	33	19.2	20.6	-1.4	-6.80

Table 2 (Cont.)

	Population Rank			Population (thousands)		1980-88 Population Change (thousands)	1980-88 Population % Change
	1988	1987	1980	1988	1980		
Desha	37	37	36	18.8	19.8	-1.0	-5.05
Conway	38	38	37	19.0	19.5	-0.5	-2.56
Johnson	39	39	41	18.4	17.5	0.9	5.14
Carroll	40	40	46	18.4	16.2	2.2	13.58
Lawrence	41	41	38	17.7	18.5	-0.8	-4.32
Drew	42	42	39	17.6	17.9	-0.3	-1.68
Yell	43	43	42	18.2	17.1	1.1	6.43
Polk	44	44	43	17.4	17.1	0.3	1.75
Chicot	45	45	40	16.7	17.8	-1.1	-6.18
Randolph	46	46	45	16.6	16.8	-0.2	-1.19
Sharp	47	47	49	15.7	14.7	1.0	6.80
Franklin	48	48	48	15.7	14.7	1.0	6.80
Van Buren	49	49	56	15.7	13.4	2.3	17.16
Lee	50	50	47	14.5	15.6	-1.1	-7.05
Sevier	51	51	50	14.0	14.1	-0.1	-0.71
Little River	52	52	51	14.0	14.0	0.0	0.00
Grant	53	53	57	14.0	13.0	1.0	7.69
Howard	54	54	54	13.4	13.5	-0.1	-0.74
Lincoln	55	55	55	13.3	13.4	-0.1	-0.75
Bradley	56	56	53	12.9	13.8	-0.9	-6.52
Monroe	57	57	52	12.5	14.0	-1.5	-10.71
Marion	58	58	58	13.0	11.4	1.6	14.04
Madison	59	59	59	12.1	11.4	0.7	6.14
Izard	60	60	62	11.2	10.8	0.4	3.70
Nevada	61	61	61	10.6	11.1	-0.5	-4.50
Scott	62	62	68	10.5	9.7	0.8	8.25
Dallas	63	63	63	10.3	10.5	-0.2	-1.90
Fulton	64	64	67	10.5	10.0	0.5	5.00
Stone	65	65	69	10.2	9.1	1.1	12.09
Woodruff	66	66	60	9.9	11.2	-1.3	-11.61
Pike	67	67	64	10.4	10.4	0.0	0.00
Prairie	68	68	66	9.9	10.1	-0.2	-1.98
Lafayette	69	69	65	9.5	10.2	-0.7	-6.86
Searcy	70	70	70	8.6	8.8	-0.2	-2.27
Cleveland	71	71	71	8.2	7.9	0.3	3.80
Newton	72	72	72	8.2	7.8	0.4	5.13
Perry	73	73	74	8.1	7.3	0.8	10.96
Montgomery	74	74	73	8.0	7.7	0.3	3.90
Calhoun	75	75	75	6.0	6.1	-0.1	-1.64

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C., May 1990.

Table 3

Rankings of Arkansas Counties By Index of Relative Economic Vitality

	Index Rank		Per Capita Income			Population			Index
			1988	1980-88		1988	1980-88		(Sum of
Arkansas Counties	1988	1987	Rank	Change	% Change	Rank	Change	% Change	Rankings)
Benton	1	1	3	5	12	4	1	1	26
Washington	2	2	8	2	7	2	3	16	38
Pulaski	3	6	1	7	42	1	2	30	83
Carroll	4	5	14	3	5	40	17	9	88
Faulkner	5	3	9	24	40	10	4	2	89
Baxter	6	4	7	12	26	23	11	11	90
Craighead	7	9	11	10	20	7	18	37	103
Sebastian	8	8	2	21	47	3	9	24	106
Pope	9	7	22	30	37	14	8	6	117
Garland	10	10	5	48	60	6	7	17	143
Boone	11	12	17	34	45	24	15	15	150
Marion	12	30	48	18	13	58	21	8	166
White	13	11	56	36	30	11	13	25	171
Saline	14	16	12	69	72	8	5	10	176
Independence	15	22	25	41	46	19	20	26	177
Logan	16	25	31	25	22	32	33	38	181
Scott	17	13	52	11	9	62	30	18	182
Lonoke	18	28	16	67	68	16	10	7	184
Howard	19	21	13	8	17	54	49	48	189
Crawford	20	23	54	59	55	15	6	3	192
Madison	21	18	45	20	14	59	32	23	193
Cleburne	22	15	46	46	48	35	14	5	194
Miller	23	20	20	51	54	17	22	31	195
Yell	24	14	41	35	33	43	23	22	197
Van Buren	25	17	63	42	25	49	16	4	199
Cross	26	67	29	15	18	34	56	51	203
Mississippi	27	43	37	14	11	9	74	59	204
Clay	28	46	27	4	1	36	70	70	208
Little River	29	33	24	23	23	52	44	44	210
Lafayette	30	42	10	1	3	69	59	71	213
Franklin	31	19	44	38	36	48	28	21	215
Izard	32T	26	30	28	29	60	37	34	218
Montgomery	32T	32	59	9	6	74	38	32	218
Pike	34T	52	32	16	19	67	43	43	220
Union	34T	24	4	56	65	13	41	41	220
Ouachita	36	37	40	70	69	18	12	14	223
Columbia	37T	27	18	44	52	26	42	42	224
Grant	37T	39	15	53	57	53	27	19	224
Cleveland	39	48	28	27	27	71	39	33	225
Polk	40	29	53	31	24	44	40	39	231
Greene	41	41	49	52	49	21	26	36	233
Conway	42	34	21	26	34	38	58	57	234
Hempstead	43	31	51	22	15	29	62	60	239
Crittenden	44	44	50	63	63	12	19	35	242
Lawrence	45T	58	26	29	32	41	61	62	251
Jefferson	45T	47	23	66	67	5	45	45	251

Table 3 (Cont.)

Arkansas Counties	Index Rank		Per Capita Income			Population			Index
			1988	1980-88		1988	1980-88		(Sum of
	1988	1987	Rank	Change	% Change	Rank	Change	% Change	Rankings)
Stone	47	40	75	54	28	65	24	12	258
Ashley	48	35	19	45	50	27	60	58	259
Randolph	49	50	61	32	21	46	51	50	261
Woodruff	50	61	42	6	4	66	69	75	262
Johnson	51	38	60	58	53	39	29	27	266
Chicot	52	71	65	19	8	45	65	66	268
Poinsett	53T	56	39	37	38	28	66	61	269
Perry	53T	36	64	49	39	73	31	13	269
Lee	55	75	72	17	2	50	67	72	280
Monroe	56	74	57	13	10	57	71	74	282
Arkansas	57	66	6	47	58	30	73	69	283
Jackson	58T	68	38	40	44	33	68	65	288
Nevada	58T	49	43	33	31	61	57	63	288
Sevier	60	45	33	60	59	51	48	47	298
Searcy	61	63	69	39	16	70	52	56	302
Sharp	62T	54	66	73	73	47	25	20	304
Desha	62T	69	55	43	41	37	64	64	304
Newton	64	51	74	57	43	72	36	28	310
Lincoln	65	70	71	55	35	55	46	49	311
Hot Spring	66	55	62	75	75	25	35	40	312
Drew	67	53	47	61	62	42	55	53	320
Bradley	68	57	35	50	51	56	63	68	323
Dallas	69	60	34	62	64	63	53	54	330
St. Francis	70	59	70	74	74	22	50	46	336
Fulton	71	62	73	72	70	64	34	29	342
Clark	72	65	36	71	71	31	72	67	348
Phillips	73	72	67	64	56	20	75	73	355
Calhoun	74	64	68	65	61	75	47	52	368
Prairie	75	73	58	68	66	68	54	55	369

Source: Bureau of Business and Economic Research derived from data in Table 1 and Table 2.
Note: T indicates a tie.

Table 4

Arkansas Per Capita Income Data
1980 and 1988 (Current Dollars)

	Rank			Per Capita Income		1980-88		1980-88 Avg. Annual
	1988	1987	1980	1980	1988	Change	%Change	%Change
United States				9,919	16,490	6,571	66.2	8.3
State of Arkansas				7,465	12,216	4,751	63.6	9.1
MSAs								
Fayetteville-Springdale	4	4	6	7,225	12,844	5,619	77.8	11.1
Fort Smith, AR-OK	5	5	4	7,753	12,242	4,489	57.9	8.3
Little Rock-North LR	2	2	1	9,113	14,688	5,575	61.2	8.7
Memphis, TN-AR-MS	1	1	2	9,092	15,456	6,364	70.0	10.0
Pine Bluff	6	6	5	7,543	11,490	3,947	52.3	7.5
Texarkana, AR-TX	3	3	3	8,207	12,957	4,750	57.9	8.3
Arkansas Counties								
Arkansas	6	13	6	8,412	13,240	4,828	57.4	8.2
Ashley	19	16	17	7,351	11,821	4,470	60.8	8.7
Baxter	7	6	9	7,897	13,185	5,288	67.0	9.6
Benton	3	2	7	8,155	14,011	5,856	71.8	10.3
Boone	17	18	15	7,459	12,164	4,705	63.1	9.0
Bradley	35	29	29	6,866	11,030	4,164	60.6	8.7
Calhoun	68	64	63	5,853	9,171	3,318	56.7	8.1
Carroll	14	12	30	6,840	12,264	5,424	79.3	11.3
Chicot	65	74	71	5,227	9,252	4,025	77.0	11.0
Clark	36	30	18	7,314	10,960	3,646	49.8	7.1
Clay	27	45	56	6,223	11,328	5,105	82.0	11.7
Cleburne	46	38	41	6,594	10,681	4,087	62.0	8.9
Cleveland	28	37	36	6,746	11,260	4,514	66.9	9.6
Columbia	18	14	12	7,570	12,132	4,562	60.3	8.6
Conway	21	21	24	7,095	11,767	4,672	65.8	9.4
Craighead	11	11	14	7,474	12,680	5,206	69.7	10.0
Crawford	54	48	44	6,578	10,436	3,858	58.7	8.4
Crittenden	50	54	35	6,757	10,562	3,805	56.3	8.0
Cross	29	58	42	6,592	11,251	4,659	70.7	10.1
Dallas	34	34	23	7,101	11,055	3,954	55.7	8.0
Desha	55	62	51	6,338	10,416	4,078	64.3	9.2
Drew	47	46	32	6,804	10,658	3,854	56.6	8.1
Faulkner	9	7	10	7,814	12,843	5,029	64.4	9.2
Franklin	44	32	47	6,479	10,713	4,234	65.3	9.3
Fulton	73	68	69	5,649	8,493	2,844	50.3	7.2
Garland	5	5	4	8,500	13,356	4,856	57.1	8.2
Grant	15	15	11	7,763	12,248	4,485	57.8	8.3
Greene	49	51	43	6,589	10,611	4,022	61.0	8.7
Hempstead	51	39	58	6,175	10,559	4,384	71.0	10.1
Hot Spring	62	56	22	7,188	9,861	2,673	37.2	5.3
Howard	13	8	19	7,303	12,472	5,169	70.8	10.1
Independence	25	27	28	6,996	11,393	4,397	62.9	9.0
Izard	30	24	37	6,745	11,243	4,498	66.7	9.5
Jackson	38	52	38	6,663	10,935	4,272	64.1	9.2
Jefferson	23	23	13	7,543	11,490	3,947	52.3	7.5

Table 4 (Cont.)

	Rank			Per Capita Income		1980-88		1980-88 Avg. Annual
	1988	1987	1980	1980	1988	Change	%Change	%Change
Johnson	60	55	49	6,356	10,124	3,768	59.3	8.5
Lafayette	10	17	25	7,085	12,777	5,692	80.3	11.5
Lawrence	26	43	31	6,823	11,345	4,522	66.3	9.5
Lee	72	75	75	4,734	8,574	3,840	81.1	11.6
Lincoln	71	73	72	5,197	8,601	3,404	65.5	9.4
Little River	24	26	33	6,798	11,439	4,641	68.3	9.8
Logan	31	31	39	6,639	11,177	4,538	68.4	9.8
Lonoke	16	20	8	8,053	12,194	4,141	51.4	7.3
Madison	45	33	52	6,245	10,687	4,442	71.1	10.2
Marion	48	53	57	6,213	10,652	4,439	71.4	10.2
Miller	20	19	16	7,431	11,805	4,374	58.9	8.4
Mississippi	37	47	50	6,344	10,940	4,596	72.4	10.3
Monroe	57	66	62	5,911	10,345	4,434	75.0	10.7
Montgomery	59	50	67	5,713	10,218	4,505	78.9	11.3
Nevada	43	40	48	6,477	10,782	4,305	66.5	9.5
Newton	74	71	73	5,052	8,294	3,242	64.2	9.2
Ouachita	40	41	20	7,229	10,870	3,641	50.4	7.2
Perry	64	60	66	5,761	9,473	3,712	64.4	9.2
Phillips	67	69	65	5,791	9,176	3,385	58.5	8.4
Pike	32	36	45	6,571	11,177	4,606	70.1	10.0
Poinsett	39	44	40	6,626	10,929	4,303	64.9	9.3
Polk	53	35	54	6,239	10,466	4,227	67.8	9.7
Pope	22	22	27	6,996	11,554	4,558	65.2	9.3
Prairie	58	63	34	6,759	10,344	3,585	53.0	7.6
Pulaski	1	1	1	9,506	15,612	6,106	64.2	9.2
Randolph	61	61	64	5,841	9,885	4,044	69.2	9.9
St. Francis	70	67	60	6,010	8,857	2,847	47.4	6.8
Saline	12	10	5	8,413	12,577	4,164	49.5	7.1
Scott	52	42	61	5,949	10,500	4,551	76.5	10.9
Searcy	69	70	70	5,240	8,958	3,718	71.0	10.1
Sebastian	2	3	2	8,708	14,167	5,459	62.7	9.0
Sevier	33	25	26	7,062	11,106	4,044	57.3	8.2
Sharp	66	65	53	6,241	9,239	2,998	48.0	6.9
Stone	75	72	74	4,961	8,280	3,319	66.9	9.6
Union	4	4	3	8,700	13,464	4,764	54.8	7.8
Van Buren	63	59	68	5,704	9,556	3,852	67.5	9.6
Washington	8	9	21	7,225	12,844	5,619	77.8	11.1
White	56	49	55	6,232	10,381	4,149	66.6	9.5
Woodruff	42	57	59	6,019	10,853	4,834	80.3	11.5
Yell	41	28	46	6,538	10,859	4,321	66.1	9.4

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, Washington, D.C., May 1990.

A Good 2nd Quarter; An Uncertain Future

Donald R. Market
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Two of the most accurate indicators of overall economic performance—*total personal income* and the *unemployment rate*—showed improvement during the first half of 1990.

The seasonally adjusted *unemployment rate* for June 1990 fell to 6.8% from the May rate of 7.2%. The comparable rates for the U.S. were 5.3% and 5.2%, respectively. The average monthly unemployment for the first half of 1990 was 6.6% compared to 7.8% in 1989. Among the 75 counties of Arkansas, June 1990 *unemployment rates* (not seasonally adjusted) ranged from a low of 3.7% (Carroll) to a high of 16.2% (Ouachita). Seven counties had rates below the national average of 5.3%: Arkansas, Benton, Carroll, Clay, Izard, Montgomery, Clay, and Washington.

Arkansas' real *total personal income* grew in the first quarter of 1990 by 5.5% over the fourth quarter of 1989, while the U.S. growth rate was 0.9%. For the four-quarter period ending March 30, 1990, the state's real growth occurred at a 3.3% rate; compared to 3.2% for the U.S. The improvement in employment during the second quarter, along with the volume of state tax collections suggest that *total personal income* continued to improve during the second quarter of this year.

Other positive indicators include *value added by manufacture* and *cash receipts from farm marketings*. After five consecutive quarters of decline, *value added* increased by 1.1% during the second quarter of this year; during the first quarter *cash receipts* grew by 24.3% to $3.9 billion, or were 4% greater than in the same quarter of one year ago.

Among negative indicators are Arkansas construction contracts which declined by 49.8% during the first quarter of 1990. The magnitude of this decline is more the result of the preceding quarter's having had a very high level of *nonresidential* construction activity rather than a poor first quarter of 1990. During the second quarter, both *residential* and *nonresidential* construction posted gains so that value of total contracts grew by 8.3% to $1.3 billion. While the Arkansas economy gets good marks for its performance during the first half of 1990, recent events in the middle east have increased uncertainty about the economy.

Iraq, OPEC, and the Future

Even before OPEC's decision to raise the price of crude oil and the Iraqi invasion of Kuwait, some experts felt that the U.S. economy was nearing a recession. The increased price of oil had an immediate effect on the world's securities markets. But this alone does not necessarily point to an immediate recession. Two sets of forces are at work: the first has to do with increased energy cost and its effects on prices and the composition of output in the domestic economy; the second with the general nature of the business cycle in market economies. Examining each separately may aid understanding how the two interact.

The conventional wisdom that increased oil prices will cause inflation is not necessarily so. If the cost of energy rises, and we do not reduce the amount of energy consumed, the result will be that more money will be spent on energy and less on other things. Price indexes will experience a rapid short term increase. Then, rate of change (inflation) in the general price level should return to its "pre-OPEC" level. Such an event is called a price shock. What occurs is an increase in the price of energy *relative* to all other goods. If the Federal Reserve Bank attempts to neutralize the affect of increased oil prices by accelerating the rate of growth of the money supply, then inflation will probably accelerate.

The business cycle, deviations around the long term trend in GNP, seems to be an unavoidable fact of economic life. Sometimes the economy operates above the long term trend; a recession generally follows these "boom" periods. Output and income fall; unemployment rises. Eventually, market corrections take place: prices (or their rate of increase) and interest rates decline and recovery begins. These deviations, though they may be minor, tend to take place even under the most ideal circumstances. The economy may operate at, or very near, the long term trend of GNP for extended periods as the U.S. has been doing since about 1985.

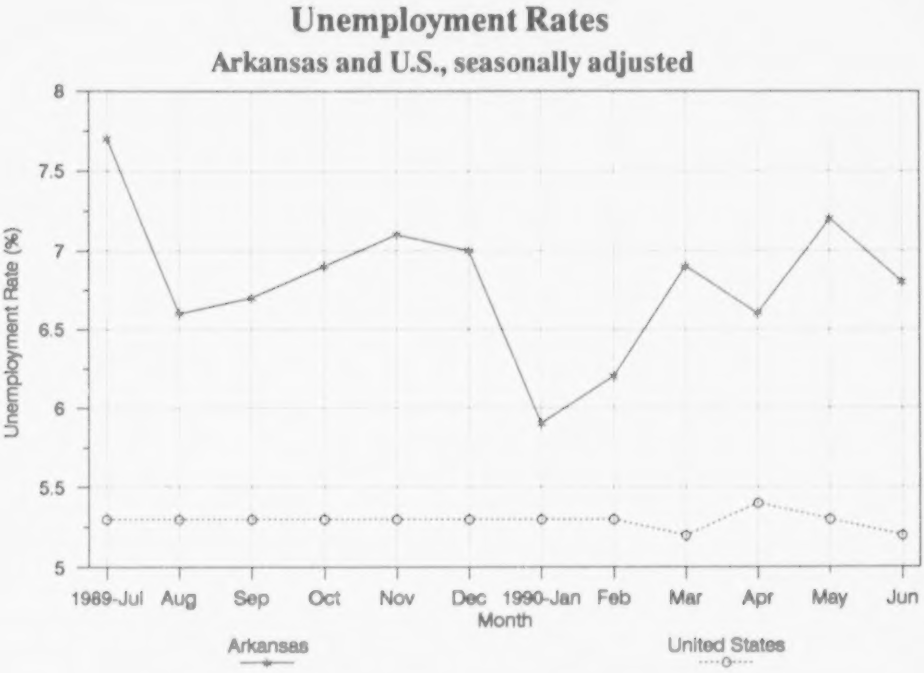
Major deviations around the long term trend in GNP, e.g., deep recessions or inflationary booms, are usually caused by some external shock – wars, natural disasters, etc. Often, attempts by policy makers to counteract the shock may actually exacerbate the situation. OPEC's actions in 1973 and 1979 are examples of external shocks that resulted in major recessions. Many economists hold that policies intended to counter those shocks actually made the situation worse.

Will the recent events in the middle east cause a repeat of 1973 and 1979? If the current price of oil ($31.22 per barrel on August 22) is maintained, the U.S. may suffer a recession. However, the probability is that it will not be as severe as the 1973-75 or 1981-83 recessions for three reasons. The real and relative magnitudes of the price increase are far less than was experienced earlier. In 1973-74, the price of oil was increased about 400% while the current increase is about 62%. Sources of oil are available from non-OPEC sources that were not available earlier. Also, industrial nations are less dependent on oil.

While adjusting to higher oil prices, the economy may undergo a slowdown in growth, or a recession, but, given time, the market shows an amazing ability to adjust to changing conditions. Comparing the size and fuel efficiency of today's automobiles with those of 1978 gives an idea of how the market handles supply shocks.

How will all of this affect the Arkansas economy? As consumers, all of us will pay more for gasoline. We will have to decide how to adjust our consumption of fuel relative to other goods and services. Arkansas is not dependent on oil for heating as is the East, thus we are somewhat insulated. Certain industries that are highly sensitive to fuel prices, e.g. trucking, will probably find their profits reduced, though probably less than in the late 1970's and early 1980's.

There is the likelihood that the U.S. and Arkansas face a recession; but it is not apt to be as severe as the last one. However, uncertainties will remain until the current Middle East crisis is resolved. Perhaps, by the time this is published in September, we will know more about where we are.



Unemployment Rates

Arkansas and U.S., seasonally adjusted

Arkansas Labor Force and Employment

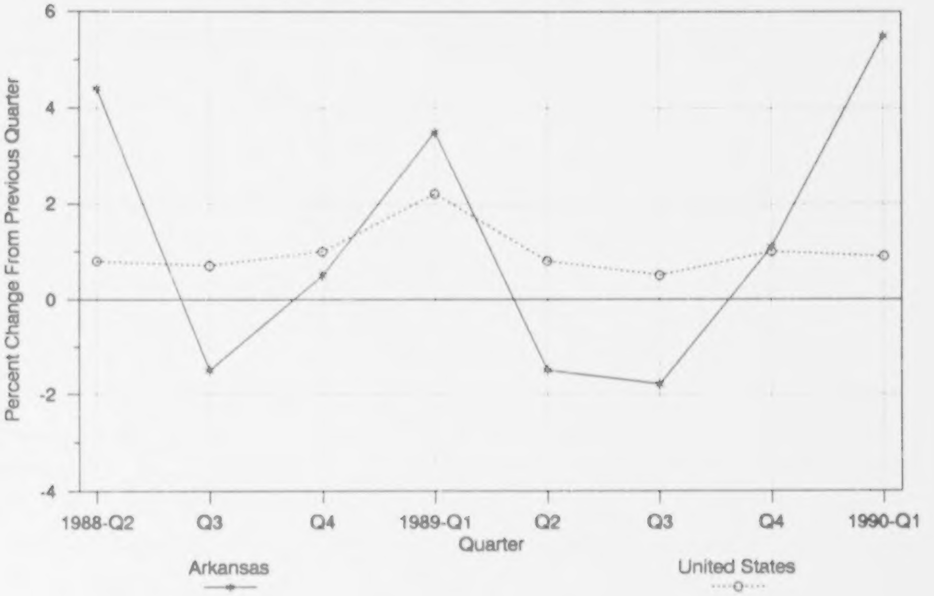
Monthly values seasonally adjusted and annualized (thousands)

Year		Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate Arkansas	Unemployment Rate U.S.
1981		1,032.8	938.6	64.5	209.7	9.1	7.6
1982		1,024.9	924.2	63.7	195.2	9.8	9.7
1983		1,028.4	924.4	62.6	199.6	10.1	9.6
1984		1,041.0	948.2	61.6	210.2	8.9	7.5
1985		1,051.6	960.7	46.2	210.3	8.7	7.2
1986		1,072.8	978.7	45.5	214.0	8.8	7.0
1987		1,088.3	1,000.2	44.8	219.5	8.1	6.2
1988		1,108.8	1,023.8	44.1	226.3	7.7	5.5
1989		1,135.1	1,053.1	43.4	230.0	7.2	5.3
1989	Jul	1,142.9	1,056.6	43.3	230.2	7.7	5.3
	Aug	1,142.4	1,062.0	43.3	230.2	6.6	5.3
	Sep	1,125.7	1,050.2	43.2	229.8	6.7	5.3
	Oct	1,131.5	1,053.3	43.1	229.4	6.9	5.3
	Nov	1,125.1	1,045.0	43.1	228.9	7.1	5.3
	Dec	1,139.5	1,059.1	43.1	228.8	7.0	5.3
1990	Jan	1,173.7	1,107.9	43.0	230.7	5.9	5.3
	Feb	1,172.4	1,102.9	43.0	230.4	6.2	5.3
	Mar	1,144.5	1,062.5	43.0	229.5	6.9	5.2
	Apr	1,148.2	1,073.2	42.8	230.7	6.6	5.4
	May	1,126.0	1,046.1	42.8	230.6	7.2	5.3
	Jun	1,095.5	1,024.0	42.7	232.7	6.8	5.2

Source: U.S. data: *Economic Indicators*. Arkansas data: *Current Employment Developments: Arkansas*,

Changes in Real Personal Income

Arkansas and U.S., quarterly, seasonally adjusted annual rates



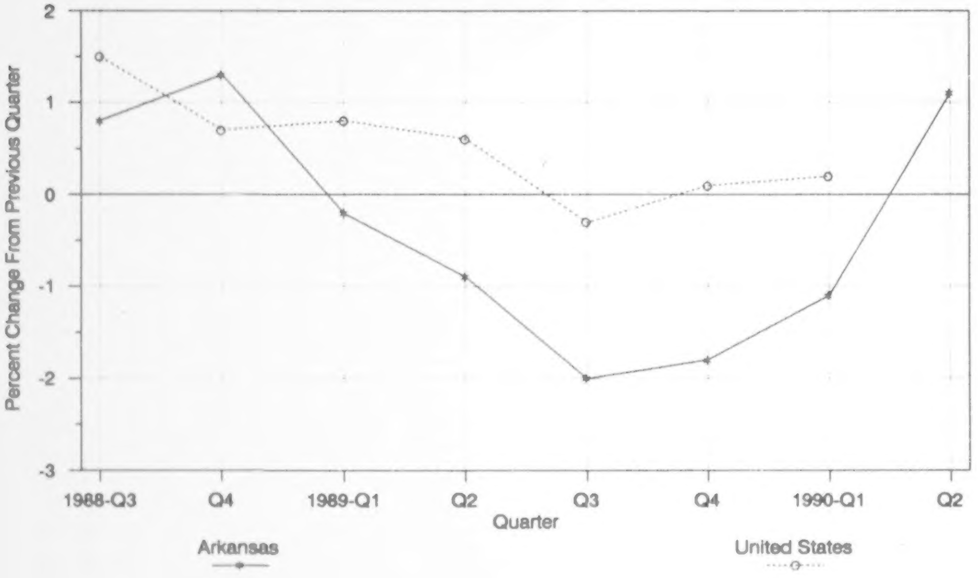
Arkansas Personal Income

Quarterly values seasonally adjusted and annualized (millions of dollars)

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1981		19,140	11.9	11.6	20,362	2.1	1.8
1982		19,855	3.7	5.9	19,855	-2.5	-0.4
1983		21,158	6.6	6.3	20,364	2.6	2.3
1984		23,309	10.2	9.5	21,643	6.3	5.7
1985		24,838	6.6	7.0	22,397	3.5	3.9
1986		26,035	4.8	6.0	22,878	2.1	3.3
1987		27,275	4.8	7.1	23,232	1.5	3.8
1989		31,187	6.6	9.0	24,693	2.4	4.6
1988	Q2	29,601	5.6	2.0	24,545	4.4	0.8
	Q3	29,468	-0.4	1.8	24,174	-1.5	0.7
	Q4	29,950	1.6	2.1	24,290	0.5	1.0
1989	Q1	31,287	4.5	3.2	25,130	3.5	2.2
	Q2	31,165	-0.4	1.9	24,754	-1.5	0.8
	Q3	30,856	-1.0	1.3	24,315	-1.8	0.5
	Q4	31,439	1.9	1.8	24,581	1.1	1.0
1990	Q1	33,598	6.9	2.3	25,924	5.5	0.9

Source: U.S. Department of Commerce, Bureau of Economic Analysis (Regional Economic Information System).

Changes in U.S.Industrial Production and Arkansas Value Added
Quarterly, seasonally adjusted annual rates

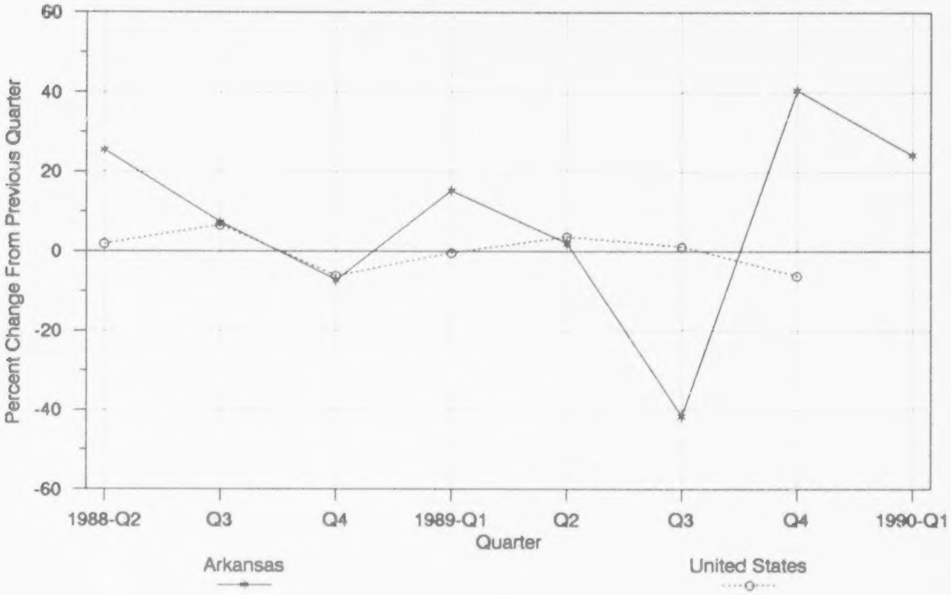


Arkansas Value Added by Manufacture
Quarterly values seasonally adjusted and annualized (millions of dollars)

		In Current $'s		In Constant 1982 $'s		
		Arkansas		Arkansas		U.S.
Year		Amount	% Change	Amount	% Change	% Change
1981		7,067.5	11.9	7,518.6	2.0	1.9
1982		7,755.3	9.7	7,755.3	3.1	-4.4
1983		8,077.5	4.2	7,774.3	0.2	3.7
1984		8,992.8	11.3	8,349.9	7.4	9.3
1985		8,349.4	-7.2	7,528.8	-9.8	1.7
1986		9,164.3	9.8	8,053.0	7.0	1.0
1987		9,635.9	5.1	8,207.8	1.9	4.9
1988		10,366.0	7.6	8,545.7	4.1	5.4
1989		10,691.4	3.1	8,465.1	-0.9	2.6
1988	Q3	10,418.5	1.9	8,546.8	0.8	1.5
	Q4	10,675.5	2.5	8,658.2	1.3	0.7
1989	Q1	10,762.7	0.8	8,644.7	-0.2	0.8
	Q2	10,789.6	0.2	8,570.0	-0.9	0.6
	Q3	10,661.3	-1.2	8,401.3	-2.0	-0.3
	Q4	10,552.0	-1.0	8,250.2	-1.8	0.1
1990	Q1	10,572.4	0.2	8,157.7	-1.1	0.2
	Q2	10,689.7	1.1	8,248.2	1.1	NA

Sources: Arkansas Value Added by Manufacture: BBER computation of amounts for years 1987 through 1989; Table 2, *Annual Survey of Manufacturers* for years 1981 through 1986; U.S. % changes from "Production and Business Activity," *Economic Indicators*. See Editor's Note on page 19.

Changes in Real Cash Receipts from Farm Marketings
Arkansas and U.S., quarterly, seasonally adjusted annual rates



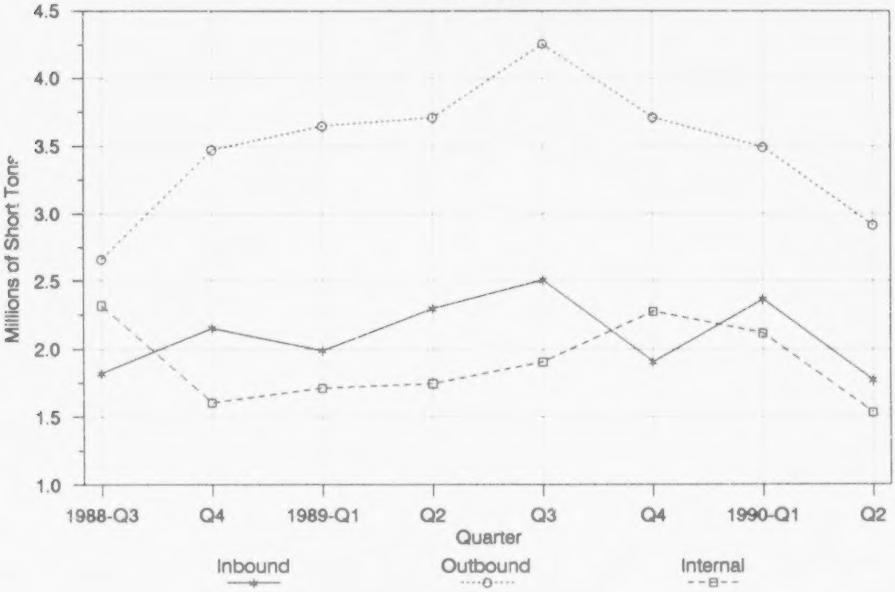
Cash Receipts from Farm Marketings
Quarterly values seasonally adjusted and annualized (millions of dollars)

		In Current $'s			In Constant 1982 $'s		
		Arkansas		U.S.	Arkansas		U.S.
Year		Amount	% Change	% Change	Amount	% Change	% Change
1981		3,391.9	9.2	1.4	3,608.4	-0.4	-7.5
1982		3,254.7	-4.0	0.6	3,254.7	-9.8	-5.4
1983		2,837.0	-12.8	-4.3	2,730.5	-16.1	-7.9
1984		3,463.8	22.1	4.4	3,216.1	17.8	0.7
1985		3,296.1	-4.8	1.1	2,972.1	-7.6	-1.8
1986		3,048.0	-7.5	-6.0	2,678.4	-9.9	-8.4
1987		3,266.0	7.2	3.0	2,781.9	3.9	-0.2
1988		3,795.0	16.2	8.6	3,128.6	12.5	5.1
1989		4,038.0	6.4	4.2	3,197.1	2.2	0.1
1988	Q2	3,903.5	26.9	3.0	3,236.8	25.5	1.9
	Q3	4,232.0	8.4	7.8	3,471.7	7.3	6.6
	Q4	3,969.2	-6.2	-5.1	3,219.2	-7.3	-6.2
1989	Q1	4,619.7	16.4	0.6	3,710.6	15.3	-0.4
	Q2	4,766.5	3.2	4.8	3,785.9	2.0	3.7
	Q3	2,798.5	-41.3	1.9	2,205.3	-41.7	1.1
	Q4	3,967.1	41.8	-5.4	3,101.7	40.6	-6.2
1990	Q1	4,998.3	26.0	NA	3856.7	24.3	NA

Sources: U.S. data: "Farm Income," *Economic Indicators*. Arkansas data: "Monthly Cash Receipts," USDA/ERS/NED.

Changes in Waterborne Freight Traffic

Seasonally adjusted



Waterborne Commerce:
McClellan-Kerr Arkansas River Navigation System

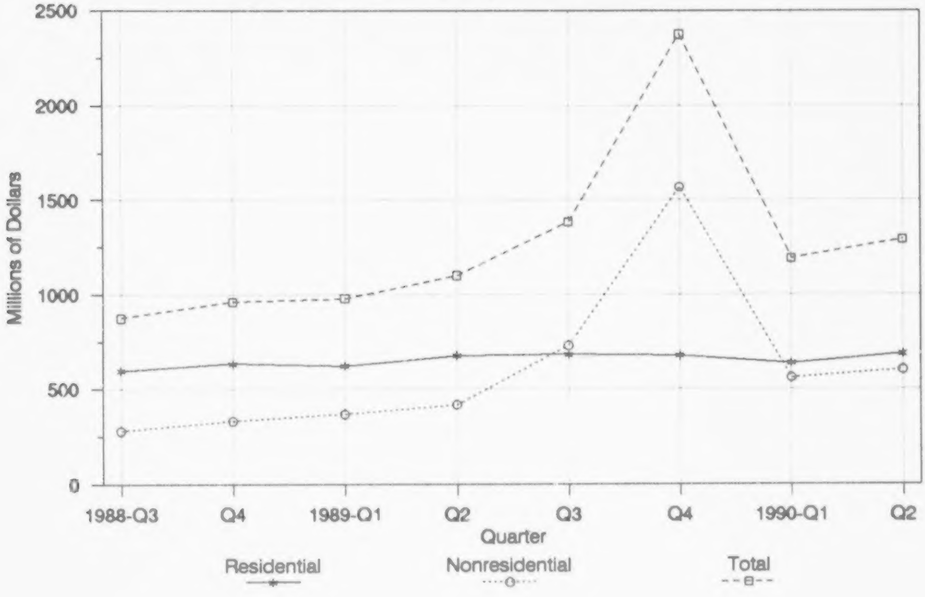
Quarterly values seasonally adjusted and annualized (thousands of short tons)

Year		Inbound		Outbound		Internal		Total	
		Total	% Change	Total	% Change	Total	% Change	Total	% Change
1981		1,563	-3.2	5,712	22.9	1,774	-27.5	9,449	3.3
1982		1,525	-2.4	4,597	-19.5	1,516	-14.6	8,280	-12.4
1983		1,914	25.5	3,896	-15.2	1,910	26.0	8,006	-3.3
1984		2,126	11.1	4,298	10.3	2,453	28.4	9,487	18.5
1985		2,090	-1.7	3,155	-26.6	2,435	-0.7	8,295	-12.6
1986		2,619	25.3	3,405	7.9	3,110	27.7	9,729	17.3
1987		2,129	-18.7	3,427	0.7	2,790	-10.3	8,900	-8.5
1988		2,088	-1.9	3,081	-10.1	2,086	-25.2	7,801	-12.4
1989		2,173	4.1	3,830	24.3	1,910	-8.4	8,348	7.0
1988	Q3	1,819	-3.5	2,660	-10.1	2,318	4.6	7,318	-4.4
	Q4	2,153	18.4	3,472	30.5	1,603	-30.8	7,570	3.4
1989	Q1	1,987	-7.7	3,647	5.0	1,713	6.8	8,144	7.6
	Q2	2,296	15.5	3,710	1.7	1,746	2.0	8,117	-0.3
	Q3	2,507	9.2	4,254	14.7	1,905	9.1	8,933	10.1
	Q4	1,903	-24.1	3,710	-12.8	2,275	19.4	8,200	-8.2
1990	Q1	2,364	24.2	3,491	-5.9	2,115	-7.1	8,720	6.3
	Q2	1,770	-25.1	2,914	-16.5	1,532	-27.5	6,700	-23.2

Source: Corps of Engineers Monthly Report – Waterborne Commerce: McClellan-Kerr Arkansas River Navigation System, New Orleans District.

Arkansas Construction Contracts

Quarterly, seasonally adjusted annual rates



Arkansas Construction Contracts

Quarterly values seasonally adjusted and annualized (millions of dollars)

Year		Residential		Nonresidential		Total	
		Contracts	% Change	Contracts	% Change	Contracts	% Change
1981		622.3	-3.4	349.3	-20.4	971.6	-10.3
1982		651.1	4.6	303.7	-13.1	954.8	-1.7
1983		898.4	38.0	353.3	16.3	1,251.7	31.1
1984		911.6	1.5	450.0	27.4	1,361.6	8.8
1985		783.2	-14.1	453.3	0.7	1,236.5	-9.2
1986		740.8	-5.4	420.2	-7.3	1,161.0	-6.1
1987		653.7	-11.8	401.4	-4.5	1,055.1	-9.1
1988		590.9	-9.6	320.8	-20.1	911.7	-13.6
1989		658.2	11.4	790.4	146.4	1,448.6	58.9
1988	Q3	596.0	5.0	278.6	-6.5	877.1	0.6
	Q4	633.1	6.2	330.9	18.8	963.0	9.8
1989	Q1	621.8	-1.8	366.9	10.9	980.4	1.8
	Q2	677.2	8.9	416.3	13.5	1,101.3	12.3
	Q3	681.0	0.6	730.4	75.4	1,382.9	25.6
	Q4	676.5	-0.7	1,568.7	114.8	2,375.7	71.8
1990	Q1	636.5	-5.9	560.0	-64.3	1,191.5	-49.8
	Q2	686.5	7.9	602.6	7.6	1,289.9	8.3

Source: *F. W. DODGE Construction Potentials*, McGraw-Hill.

ARKANSAS LABOR FORCE ESTIMATES
June 1990, Not Seasonally Adjusted

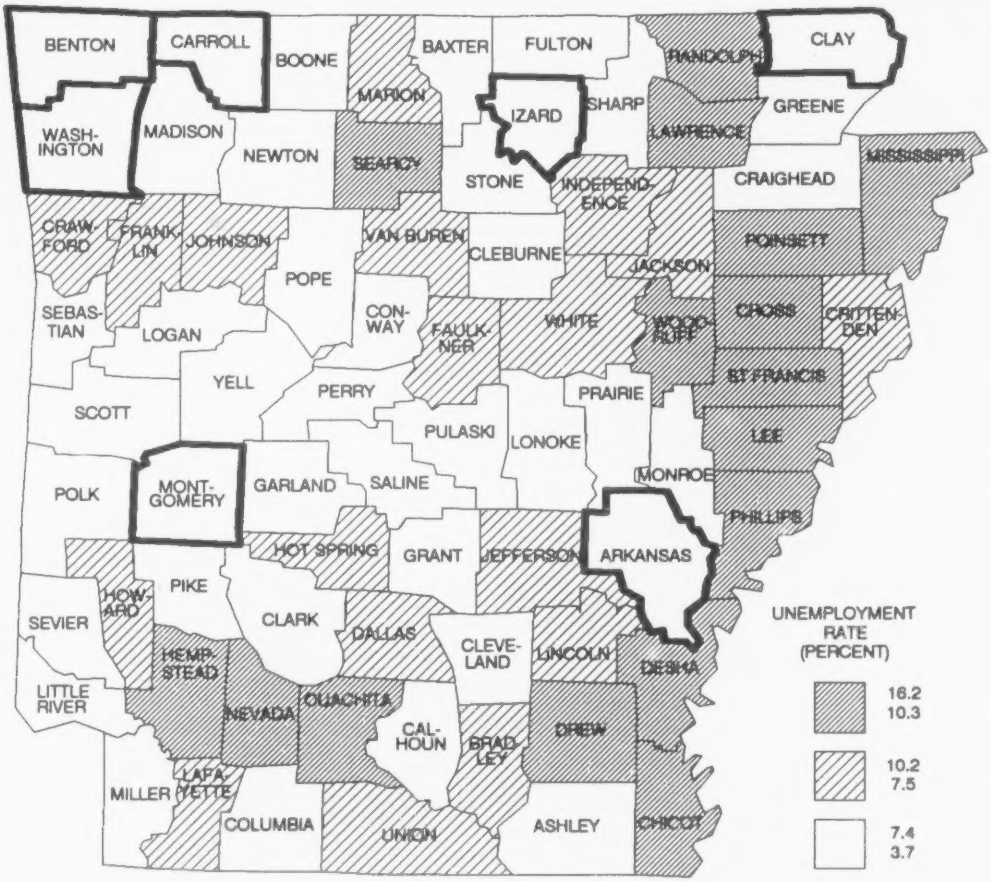
Area	Civilian Labor Force	Total Employment	Unemployment Rate
UNITED STATES	126,307,000	119,605,000	5.3
STATE OF ARKANSAS	1,124,900	1,043,400	7.2
Fayetteville-Springdale MSA	62,800	60,325	3.9
Fort Smith MSA	92,000	85,875	6.7
Little Rock-North Little Rock MSA	265,825	248,525	6.5
Pine Bluff MSA	36,775	33,450	9.0

County	Civilian Labor Force	Total Employment	Unemployment Rate	County	Civilian Labor Force	Total Employment	Unemployment Rate
Arkansas	10,175	9,675	4.9	Lee	4,450	3,950	11.2
Ashley	11,150	10,375	7.0	Lincoln	4,750	4,375	7.9
Baxter	11,500	10,775	6.3	Little River	6,325	5,900	6.7
Benton	51,100	49,175	3.8	Logan	9,925	9,350	5.8
Boone	14,900	14,050	5.7	Lonoke	17,725	16,575	6.5
Bradley	5,225	4,750	9.1	Madison	5,325	5,000	6.1
Calhoun	4,775	4,425	7.3	Marion	6,350	5,875	7.5
Carroll	10,775	10,375	3.7	Miller	17,850	16,650	6.7
Chicot	6,075	5,425	10.7	Mississippi	21,300	18,950	11.0
Clark	9,125	8,600	5.8	Monroe	4,975	4,625	7.0
Clay	9,525	9,025	5.2	Montgomery	3,025	2,875	5.0
Cleburne	8,950	8,400	6.1	Nevada	4,025	3,500	13.0
Cleveland	3,425	3,200	6.6	Newton	4,100	3,825	6.7
Columbia	12,175	11,350	6.8	Ouachita	13,600	11,400	16.2
Conway	7,975	7,400	7.2	Perry	4,425	4,100	7.3
Craighead	36,150	34,075	5.7	Phillips	9,950	8,825	11.3
Crawford	21,400	19,725	7.8	Pike	4,900	4,550	7.1
Crittenden	22,000	20,175	8.3	Poinsett	10,450	9,325	10.8
Cross	8,600	7,550	12.2	Polk	7,775	7,350	5.5
Dallas	4,425	4,025	9.0	Pope	24,275	22,475	7.4
Desha	7,325	6,450	11.9	Prairie	5,200	4,875	6.3
Drew	8,225	7,325	10.9	Pulaski	189,575	177,675	6.3
Faulkner	28,100	25,750	8.4	Randolph	7,175	6,400	10.8
Franklin	6,175	5,625	8.9	St. Francis	10,050	8,525	15.2
Fulton	3,850	3,575	7.1	Saline	30,425	28,525	6.2
Garland	31,275	29,075	7.0	Scott	5,325	4,975	6.6
Grant	7,225	6,800	5.9	Searcy	3,250	2,850	12.3
Greene	15,100	14,125	6.5	Sebastian	52,975	49,500	6.6
Hempstead	10,450	9,350	10.5	Sevier	7,275	6,875	5.5
Hot Spring	11,275	10,125	10.2	Sharp	6,375	6,025	5.5
Howard	6,575	6,000	8.7	Stone	4,275	3,975	7.0
Independence	15,300	14,100	7.8	Union	20,575	18,950	7.9
Izard	5,750	5,475	4.8	Van Buren	6,175	5,575	9.7
Jackson	8,550	7,700	9.9	Washington	62,800	60,325	3.9
Jefferson	36,775	33,450	9.0	White	25,175	22,975	8.7
Johnson	7,450	6,775	9.1	Woodruff	3,900	3,450	11.5
Lafayette	3,275	2,975	9.2	Yell	8,675	8,100	6.6
Lawrence	8,100	7,125	12.0				

Source: Labor Market Information for Arkansas Counties, Arkansas Employment Security Division, July 1990.

Labor Force Estimates
June 1990

In June, Arkansas' Civilian Labor Force shrank 5,500 to total 1,124,900. Total Employment for the same period fell by 6,700 to total 1,043,400. Accordingly, Unemployment rose 1,200 to total 81,500. Of the 75 counties, Carroll had the lowest unemployment rate, 3.7 percent, and Ouachita had the highest rate, 16.2 percent; 37 counties had unemployment rates lower than state's 7.2 percent while 17 others had rates above 10 percent. Of the MSAs, Fayetteville-Springdale had the lowest unemployment rate, 3.9 percent; and Pine Bluff had the highest, 9.0 percent. The unemployment rates for the Little Rock-North Little Rock and the Fort Smith MSAs were 6.5 and 6.7 percent, respectively.


BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASH-INGTON
MADISON
NEWTON
SEARCY
IZARD
SHARP
LAWRENCE
GREENE
STONE
INDEPEND-ENCE
CRAIGHEAD
MISSISSIPPI
CRAW-FORD
FRANK-LIN
JOHNSON
VAN BUREN
CLEBURNE
POINSETT
POPE
JACKSON
SEBAS-TIAN
LOGAN
CON-WAY
FAULK-NER
WHITE
WOOD-RUFF
CROSS
CRITTEN-DEN
YELL
PERRY
PRAIRIE
ST FRANCIS
SCOTT
PULASKI
LONOKE
LEE
POLK
MONT-GOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
PIKE
HOW-ARD
SEVIER
CLARK
DALLAS
CLEVE-LAND
LINCOLN
DESHA
HEMP-STEAD
LITTLE RIVER
NEVADA
OUACHITA
CAL-HOUN
BRAD-LEY
DREW
MILLER
LAFA-YETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE (PERCENT)
16.2 10.3
10.2 7.5
7.4 3.7

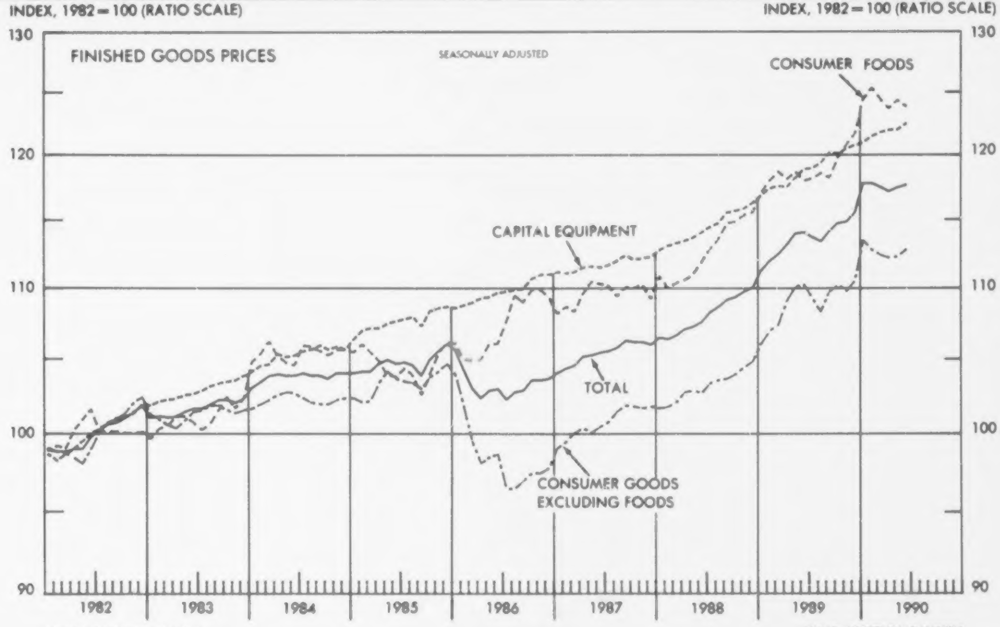
▬ Boundary lines of counties having an unemployment rate less than or equal to the national average of 5.3 percent.

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

PRICES

PRODUCER PRICES

In June, the producer price index for all finished goods rose 0.2 percent. Prices of finished consumer foods fell 0.4 percent, while prices of other finished consumer goods rose 0.4 percent. Capital equipment prices rose 0.4 percent.



SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982=100; monthly data seasonally adjusted]

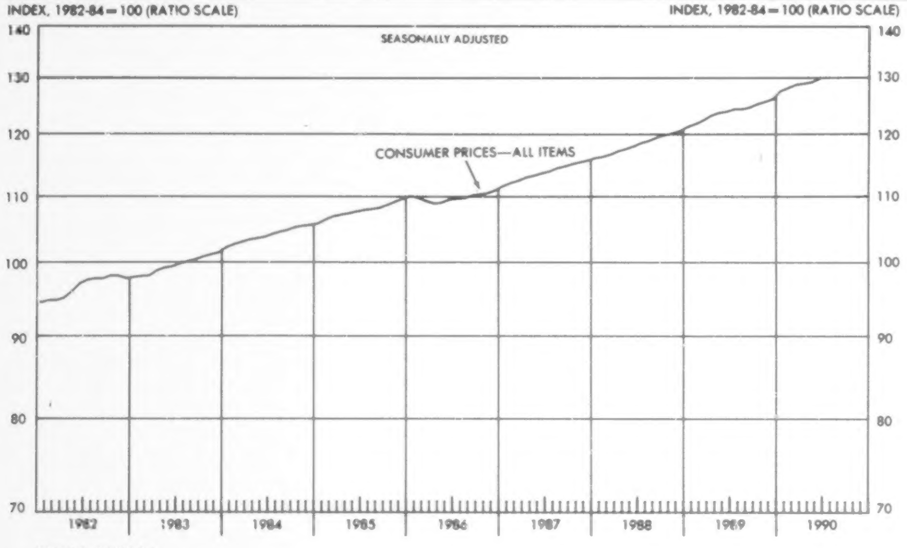
Period	Finished goods								Intermediate materials			Crude materials		
	Total finished goods	Consumer foods	Finished goods excluding consumer foods					Total finished consumer goods	Total	Foods and feeds [1]	Other	Total	Foodstuffs and feedstuffs	Other
			Total	Consumer goods			Capital equipment							
				Total	Durable	Nondurable								
1980	88.0	92.4	86.7	87.1	91.0	85.1	85.8	88.6	90.3	105.5	89.4	95.3	104.6	84.6
1981	96.1	97.8	95.6	96.1	96.4	95.8	94.6	96.6	98.6	104.6	98.2	103.0	103.9	101.8
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	101.6	101.0	101.8	101.2	102.8	100.5	102.8	101.3	100.6	103.6	100.5	101.3	101.8	100.7
1984	103.7	105.4	103.2	102.2	104.5	101.1	105.2	103.3	103.1	105.7	103.0	103.5	104.7	102.2
1985	104.7	104.6	104.6	103.3	106.5	101.7	107.5	103.8	102.7	97.3	103.0	95.8	94.8	96.9
1986	103.2	107.3	101.9	98.5	108.9	93.3	109.7	101.4	99.1	96.2	99.3	87.7	93.2	81.6
1987	105.4	109.5	104.0	100.7	111.5	94.9	111.7	103.6	101.5	99.2	101.7	93.7	96.2	87.9
1988	108.0	112.6	106.5	103.1	113.8	97.3	114.3	106.2	107.1	109.5	106.9	96.0	106.1	85.5
1989	113.6	118.7	111.8	108.9	117.6	103.8	118.8	112.1	112.0	113.8	111.9	103.1	111.2	93.4
1989: June	114.0	117.9	112.7	110.2	117.7	105.6	118.8	112.8	112.3	111.6	112.4	103.3	109.6	94.7
July	113.6	118.1	112.1	109.2	117.4	104.3	118.9	112.1	112.1	113.2	112.0	103.5	108.9	95.5
Aug	113.3	118.5	111.5	108.2	117.8	102.7	119.3	111.6	111.8	112.8	111.8	101.1	109.7	91.3
Sept	114.1	118.1	112.8	109.7	118.7	104.5	120.1	112.5	112.2	112.7	112.2	102.3	109.0	93.6
Oct	114.7	119.7	113.1	110.1	118.6	105.1	120.0	113.3	112.4	112.5	112.4	102.6	109.0	94.1
Nov	114.8	120.7	112.9	109.7	118.7	104.4	120.4	113.3	112.2	113.4	112.1	103.2	111.4	93.5
Dec	115.5	121.6	113.5	110.4	119.2	105.3	120.7	114.1	112.2	113.1	112.1	104.7	113.9	94.4
1990: Jan	117.7	124.4	115.6	113.4	118.6	109.7	120.9	117.0	113.6	113.3	113.6	107.0	114.7	97.5
Feb r	117.7	125.3	115.2	112.7	119.0	108.5	121.4	116.8	112.7	112.3	112.8	107.3	115.4	97.5
Mar	117.4	124.4	115.1	112.3	119.4	107.8	121.7	116.3	112.8	112.8	112.8	106.0	116.3	94.9
Apr	117.1	123.6	115.0	112.1	119.2	107.6	121.9	115.9	112.9	114.2	112.8	102.7	115.4	90.3
May	117.4	124.3	115.1	112.2	119.3	107.7	121.9	116.2	112.8	115.6	112.7	102.6	112.5	91.9
June	117.6	123.8	115.6	112.7	120.4	107.9	122.4	116.3	112.6	114.1	112.5	100.1	112.9	87.9

[1] Intermediate materials for food manufacturing and feeds.

Source: Department of Labor, Bureau of Labor Statistics.

CONSUMER PRICES—ALL URBAN CONSUMERS

In June, the consumer price index for all urban consumers rose 0.5 percent, seasonally adjusted and not seasonally adjusted. The index was 4.7 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1982-84 = 100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1]		Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, shelter, and energy
	Not seasonally adjusted (NSA)	Seasonally adjusted		Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
					Total	Renters' costs (Dec. 1982=100)	Homeowners' costs (Dec. 1982=100)	Maintenance and repairs (NSA)								
Rel. imp. [3]	100.0	....	16.3	42.0	27.9	7.9	19.8	0.2	7.5	6.1	17.1	4.2	3.2	6.2	7.4	48.4
1980	82.4	....	86.8	81.1	81.0	....	....	82.4	75.4	90.9	83.1	88.4	97.4	74.9	86.0	80.6
1981	90.9	....	93.6	90.4	90.5	....	....	90.7	86.4	95.3	93.2	93.7	108.5	82.9	97.7	88.3
1982	96.5	....	97.4	96.9	96.9	....	....	96.4	94.9	97.8	97.0	97.4	102.8	92.5	99.2	95.1
1983	99.6	....	99.4	99.5	99.1	103.0	102.5	99.9	100.2	100.2	99.3	99.9	99.4	100.6	99.9	100.0
1984	103.9	....	103.2	103.6	104.0	108.6	107.3	103.7	104.8	102.1	103.7	102.8	97.9	106.8	100.9	105.0
1985	107.6	....	105.6	107.7	109.8	115.4	113.1	106.5	106.5	105.0	106.4	106.1	98.7	113.5	101.6	109.0
1986	109.6	....	109.0	110.9	115.8	121.9	119.4	107.9	104.1	105.9	102.3	110.6	77.1	122.0	88.2	112.7
1987	113.6	....	113.5	114.2	121.3	128.1	124.8	111.8	103.0	110.6	105.4	114.6	80.2	130.1	88.6	117.0
1988	118.3	....	118.2	118.5	127.1	133.6	131.1	114.7	104.4	115.4	108.7	116.9	80.9	138.6	89.3	121.9
1989	124.0	....	125.1	123.0	132.8	138.9	137.3	118.0	107.8	118.6	114.1	119.2	88.5	149.3	94.3	127.3
1989:																
June	124.1	124.1	125.2	122.6	132.3	138.0	136.9	118.3	107.3	118.9	115.7	119.3	94.6	148.7	96.4	127.4
July	124.4	124.5	125.6	123.3	133.2	139.6	137.6	118.4	107.8	118.3	115.3	118.8	92.9	149.6	95.9	127.7
Aug	124.6	124.5	125.9	123.5	133.5	139.1	138.2	118.5	107.8	116.9	114.2	118.5	88.4	150.8	93.8	127.8
Sept	125.0	124.8	126.3	123.7	133.7	138.7	138.7	118.6	108.0	118.6	113.9	118.1	87.1	151.9	93.2	128.3
Oct	125.6	125.4	126.8	124.2	134.4	139.8	139.4	118.6	108.1	119.4	114.5	118.8	88.4	153.0	94.1	128.8
Nov	125.9	125.8	127.4	124.7	135.0	140.5	140.0	119.3	108.7	119.4	114.6	119.8	86.8	154.2	93.8	129.3
Dec	126.1	126.3	128.0	125.2	135.6	141.0	140.6	119.5	109.4	119.0	115.0	120.8	86.3	155.1	94.1	129.7
1990:																
Jan	127.4	127.7	130.5	126.1	136.3	142.3	141.1	120.4	111.6	119.0	117.4	121.6	93.4	156.1	98.9	130.4
Feb	128.0	128.3	131.1	126.3	136.6	143.4	141.0	120.8	110.9	122.9	117.7	121.4	93.6	157.3	98.2	131.5
Mar	128.7	128.9	131.5	126.9	137.6	143.8	142.4	121.2	111.0	124.9	117.6	121.2	92.2	158.5	97.4	132.2
Apr	128.9	129.1	131.2	127.0	137.9	143.9	142.8	121.2	110.5	125.0	117.7	120.9	92.5	159.8	97.0	132.6
May	129.2	129.3	131.2	127.2	138.2	143.9	143.2	122.2	110.5	124.6	117.5	120.7	91.2	161.0	96.3	132.9
June	129.9	130.0	132.2	128.0	139.5	144.5	144.8	121.8	110.3	124.5	118.0	120.5	93.2	162.1	96.9	133.2

[1] Includes items not shown separately.

[2] Household fuels—gas (piped), electricity, fuel oil, etc.—and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1989.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Data beginning 1987 and 1988 calculated on a revised basis.

Source: Department of Labor, Bureau of Labor Statistics.

* * * New Bureau Publications * * *

The Bureau is pleased to announce the publication of the following new monographs that have recently been published:

THE ESTIMATED EFFECTS OF CURRENT AND PROPOSED USURY CEILINGS ON COMMERCIAL LOANS IN ARKANSAS, by Pu Liu, Stanley D. Smith, and Jim D. Tripp, July 1990, 31 pages;

A COMPARISON OF RETURNS ON INVESTMENTS: THE DOW-JONES INDUSTRIAL STOCKS VS. TREASURY BILLS 1958-1987, by James A. Millar and Pu Liu, July 1990, 58 pages.

The research and publication of these volumes were made possible through a grant funded by the Worthen Banking Corporation Research Fund honoring the late James H. Penick. A limited number of these monographs are available at $10.00 each. Contact the Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Fayetteville, AR 72701 accompanied by a check in the amount of $10.00.

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